October 26, 2017

Ohio Environmental Protection Agency Division of Air Pollution Control Southeast District Office 2195 Front Street Logan, OH 43138

Re:

Rice Drilling D, LLC

NSPS Subpart OOOOa Annual Report

RECEIVED

OCT 3 0 2017

AIR ENFORCEMENT BRANCH U.S. EPA REGION 5

To whom it may concern:

Rice Drilling D, LLC (Rice) is submitting the attached report for NSPS Subpart OOOOa, as required by 40 CFR §60.5420a(b). This report contains the information specified in §60.5420a(b)(1), (b)(2), (b)(7), and (b)(8).

The report covers the period of August 2, 2016 through August 1, 2017.

Should you have any questions or comments about this submittal, please contact me at (412) 400-6887 or at kristin.ryan@riceenergy.com.

Sincerely,

Kristin Ryan

Emissions Permitting Specialist

Rice Energy, Inc.

Cc:

Director, Air and Radiation Division

US Environmental Protection Agency, Region V

77 West Jackson Boulevard Chicago, IL 60604-3590

Enclosures



Rice Drilling D, LLC NSPS Subpart OOOOa Annual Report

General Information

Company	Name	
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Rice Drilling D, LLC

Address:

2200 Rice Drive

Canonsburg, PA 15317

Reporting Period					
Start Date	End Date				
8/2/2016	8/1/2017				

Report Preparer

Name:

Kristin Ryan

Title:

Emissions Permitting Coordinator

Phone:

412-400-6887

Email:

kristin.ryan@riceenergy.com

Certifying Official

Name:

Jide Famaugun

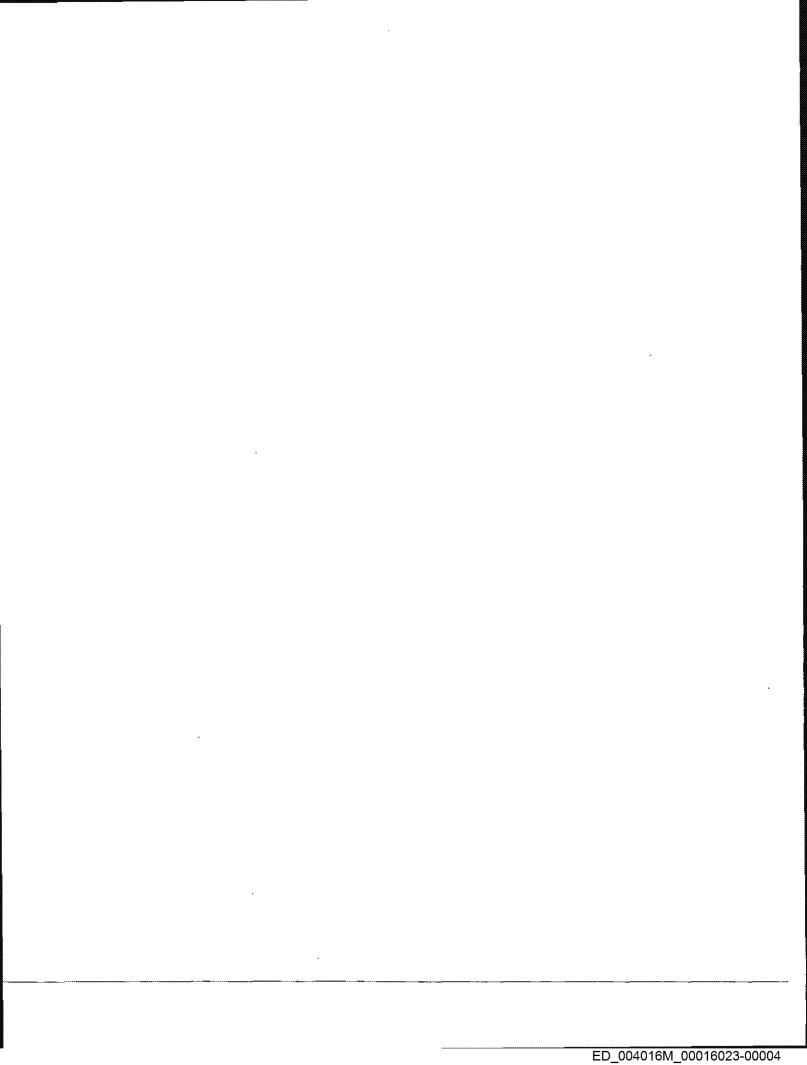
Title:

VP of Production

Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

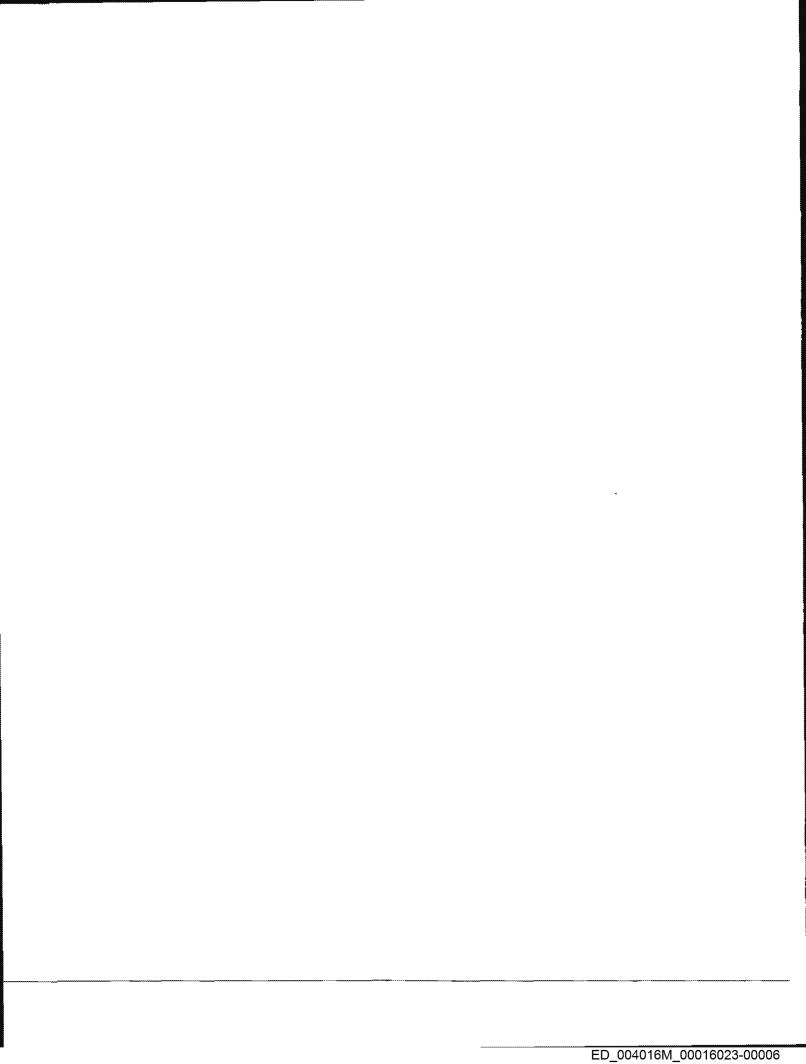
Signature

Date



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Rice Orilling 8, LLC NSPS Subpart GOOGa Annual Report

Prieumatic Pump Affected Facilities

Preventic Fumos Constructed, Modified, or Reconstructed During the Reporting Period: Emissions from the l'echnicatly infeasible to capture and route the Neumatic pump are routed to esived formos & at Records of Deviations Ka control device or proce emissions to the control Occuring Guring the is available on site protessi to redover device or process West Site Street Address City County State Pumps {X} 1X) (X) Reporting Period⁴ Big Dawg 53780 Gallaher Road Powhacan Point Belmont OH PE certification attached Bounty Hunter Dr Awkward 42617 Water Tower Road Belmant Belmant PE certification attached 39342 Everett Turner Dory Mill Road PE certification attached Bethesda Belmons 59055 Gysart Woods Road Oragons Steash OH PE certification attached Belmont Belmant 59327 Hunser-Bethesda Road Bethesda OH PE certification amached Haymaker Beimont 42178 Noon Road 8elmont PE certification attached fron Warrior OH Beimon 53059 Dusty Lane Beallsville Belmont CH PE certification attached lunkyard Dog OH Madusa 41882 Township Road 192 Selmont Belmant PE certification attached Monster Mutt 53333 Kanzigg Road Bealfsville Beknows PE certification attached Spirke \$4089 Gallaher Road Powhaten Point Relmont OH PE certification attached OH OH Taro Cat S957% Pleasant Ridge Road Barlmont troomies? PE certification attached 44244 Beimant-Centerville Road PE certification attached Thrasher Belmont Seimont 59578 Pleasant Ridge Road Tace Cat Belmont Belmont PE certification attached 40383 Fit (getald fload Tuna Nut Bethesda Belmont OH PE certification attached

Preumatic Pumps P.	reviously Reported and For Which a C	hange in the Repo	rted Conditio	n Changed	During the Rep	orting Period:						
1									Control device or process			1
	1	l			ſ		New control device and		was removed and now			1
		1					technically infeasible to	Control device or process	technically infeasible to	1		
1	1	1	1	}	1)	sett divion bus pruttes	was removed and now no	cepture and route the	ì	;	}
1	1		l		l	New control device and	emissions to the control	control/process is available	emissions to another control	Records of Deviations		1
		1	Ì		1	emissions are costrolled	device	on site	device or process	Occuring Buring the		1
Well Site	Street Address	City	County	State	Pump ID	(N)	(80)	(%)	(x)	Reporting Period	Comments	
H/A	1	1	1	}	(ţ

if the control device is designed to achieve less than 95 percent emissions reduction, specify the percent emissions reductions the control device is designed to achieve.

³ As specified in 40 CFR 60.5420a(c)(16)(ii).



40 CFR Subpart OOOOa Compliance Plan – *Production*

Diaphragm Pumps

LOCATION

Big Dawg

911 ADDRESS

53780 Gallaher Rd. - Powhatan Point, OH 43942

COUNTY Belmont (OH) WELL NAMES

1H-A / 3H-A / 5H / 7H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	January 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFI ĘLD 9MEI L Xes / No	No

NO. OF PLAPHRAGM PUMPS	1
install date	January 2017
E APPLICATION :	Heat trace/insulation on dehy units
IN USE FOR,< 90 DAYS? – Yes F No	Yes – see documentation
ROUTEDIJO PROCESS - Yesy No	No
CONTROLLED YESY NO	No

Comments	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
 - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
- 2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
 - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

DIAPHRAGM PUMPS - BIG DAWG

Matthew G. Fox
Production Facilities Engineer
matthew.fox@riceenergy.com
Phone: 412-420-9392

Noth THE MATTHEW C. GF 10/26/17 Cory Harris, P.E.
Environmental Engineer
cory.harris@riceenergy.com

Phone: 724,271-771



40 CFR Subpart OOOOa Compliance Plan - Production

Diaphragm Pumps

LOCATION

Bounty Hunter

911 ADDRESS

42617 Water Tower Rd. - Belmont, OH 43718

COUNTY Belmont (OH) WELL NAMES

2H / 4H / 6H / 8H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	April 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	· No
CONTROLLED - Yes / No	No
GREENFIELD SITE 4xes / No	No

NO/OF DIAPHRAGM, PUMPS	1
E INSTALL DATE	April 2016
APPLICATION :	Heat trace/insulation on dehy units
IN USE FOR < 90-DAYS? -Yes / No	Yes – see documentatión
ROUTED TO PROCESS Yes / No	No
CONTROLLED - Yes / No	No

Comments	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

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DIAPHRAGM PUMPS - BOUNTY HUNTER

Matthew G. Fox
Production Facilities Engineer
matthew.fox@riceenergy.com
Phone: 412-420-9392

narryew e.fox

Cory Harris, P.E. Environmental Engineer cory.harris@riceenergy.com

Phone: 724-271-7718

HARRIS E-82398

DIAPHRAGM PUMPS - BOUNTY HUNTER



40 CFR Subpart OOOOa Compliance Plan - Production

Diaphragm Pumps

LOCATION Dr.

Dr. Awkward 911 ADDRESS

39142 Everett Turner Dory Mill Rd. -

Bethesda, OH 43719

COUNTY

Belmont (OH)

WELL NAMES 1H/3H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	May 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CQNTROLLED - Yes / No	No
GREENFIELD SITE – Yés/ No	No

NO. OF DJÁPHRÁGM PUMPS	1
: INSTALL DATE	May 2017
. APPLICATION .	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? Yes / No	Yes – see documentation
ROUTED TÓ PROCESS – Yes / No	No
CONTROLLED – Yes / No	No

Comments	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

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DIAPHRAGM PUMPS - DR. AWKWARD

Matthew G. Fox
Production Facilities Engineer
matthew.fox@riceenergy.com
Phone: 412-420-9392

Natura marruew c. fox coles/1+ Cory Harris, P.E.
Environmental Engineer
cory.harris@riceenergy.com

Phone, 724-271-7718

CORYA HARRIS E-82398



40 CFR Subpart OOOOa Compliance Plan – *Production*

Diaphragm Pumps

LOCATION COUNTY

Dragons Breath Belmont (OH)

911 ADDRESS 59055 Dysart Woods Rd. – Belmont, OH 43718

1H/3H/5H/7H WELL NAMES

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	July 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED - Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	July 2016
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? — Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No

NO. OF DIAPHRAGM PUMPS	3
INSTALL DATE	July 2016
APPLICATION	Circulation pumps on evaporator
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No

Comments	,			
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Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

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"I certify that the assessment of technical infeasibility was prepared under my direction or supervision. I further certify that the assessment was conducted and this report was prepared pursuant to the requirements of §60.5393a(b)(5)(iii). Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false information."

Matthew G. Fox Production Facilities Engineer matthew.fox@riceenergy.com

Phone: 412-420-9392

MATTHEW G. Fox

10/26/17-

Cory Harris, P.E.
Environmental Engineer

cory.harris@riceenergy.com Phone: 724-271-7718

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CORY A



40 CFR Subpart OOOOa Compliance Plan – Production

Diaphragm Pumps

LOCATION

Haymaker

911 ADDRESS

59327 Hunter-Bethesda Rd. -

Bethesda, OH 43912

COUNTY

Belmont (OH)

WELL NAMES 11

1H/3H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	June 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GŖĖĘŇFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE :	June 2017
APPLICATION '	Heat trace/insulation on dehy units
IN USÉ FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No

Comments		
	 	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

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DIAPHRAGM PUMPS - HAYMAKER

Matthew G. Fox
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Phone: 412-420-9392

Material Copposition

Cory Harris, P.E.
Environmental Engineer
cory.harris@riceenergy.gom

Phone: 724-271-771

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HARRIS E-82396



40 CFR Subpart OOOOa Compliance Plan - Production

Diaphragm Pumps

LOCATION

Iron Warrior

911 ADDRESS 42178 Noon Rd. - Belmont, OH 43718

COUNTY

Belmont (OH)

WELL NAMES 2H / 4H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	April 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	April 2016
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No :
CONTROLLED - Yes / No	No

Comments	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

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DIAPHRAGM PUMPS - IRON WARRIOR



40 CFR Subpart OOOOa Compliance Plan - Production

Diaphragm Pumps

1H/3H

LOCATION

Junkyard Dog

911 ADDRESS

53059 Dusty Lane - Beallsville, OH 43716

COUNTY Belmont (OH) WELL NAMES

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	January 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	January 2017
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED - Yes / No	No

Comments	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
 - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
- 2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
 - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

DIAPHRAGM PUMPS - JUNKYARD DOG

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matruew 6. Fox. 10/26/17 Cory Harris, P.E.
Environmental Engineer
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Cory Harris, P.E. Environmental Engineer cory.harris@riceenergy.com

WEDPONZO

CORYA. HARRIS E-82396



40 CFR Subpart OOOOa Compliance Plan - Production

Diaphragm Pumps

LOCATION

Madusa

911 ADDRESS

41882 Township Rd. 192 - Belmont, OH 43718

COUNTY Belmont (OH)

WELL NAMES 2H / 4H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	July 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? — Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	July 2016
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No ·
CONTROLLED – Yes / No	No

Comments	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
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DIAPHRAGM PUMPS - MADUSA

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MATTUE 66, FOR

10/20/17

Cory Harris, P.E.
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E OF OHIZ

CORY A. HARRIS E-82398

DIAPHRAGM PUMPS – MADUSA



40 CFR Subpart OOOOa Compliance Plan – *Production*

Diaphragm Pumps

LOCATION COUNTY Monster Mutt

911 ADDRESS

53333 Kanzigg Rd. – Beallsville, OH 43716

Belmont (OH)

WELL NAMES 1H/3H/5H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	January 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	January 2017
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED - Yes / No	No

Comments	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
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DIAPHRAGM PUMPS - MONSTER MUTT

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CORY A. HARRIS E-82396

DIAPHRAGM PUMPS - MONSTER MUTT



40 CFR Subpart OOOOa Compliance Plan - Production

Diaphragm Pumps

LOCATION Sp

Spitfire

911 ADDRESS

54089 Gallaher Rd. - Powhatan Point, OH 43942

COUNTY Belmont (OH)

WELL NAMES 1H/3H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	January 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED - Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	January 2017
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No

Comments	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
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DIAPHRAGM PUMPS - SPITFIRE

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CORY A. HARRIS E-82396

DIAPHRAGM PUMPS - SPITFIRE



40 CFR Subpart OOOOa Compliance Plan - Production

Diaphragm Pumps

LOCATION

Taco Cat

911 ADDRESS

59578 Pleasant Ridge Rd. – Belmont, OH 43718

COUNTY

Belmont (OH)

WELL NAMES

1H/3H/5H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	May 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? — Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE •	May 2017
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED - Yes / No	No

Comments	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard Profire 2100 BMS.
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DIAPHRAGM PUMPS - TACO CAT

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MATTHEW GFOR

10/26/17

DIAPHRAGM PUMPS - TACO CAT



40 CFR Subpart OOOOa Compliance Plan – Production

Diaphragm Pumps

LOCATION

Thrasher

911 ADDRESS

44244 Belmont Centerville Rd. -

Belmont, OH 43718

COUNTY

Belmont (OH)

WELL NAMES

1H/3H/5H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	April 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? — Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE - Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	April 2016
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED - Yes / No	No

Comments	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
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DIAPHRAGM PUMPS - THRASHER

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MATTHEW & 1FOX
10/26/14

Cory Harris, P.E. Environmental Engineer cory.harris@riceenergy.com

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CORY A.

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DIAPHRAGM PUMPS - THRASHER



40 CFR Subpart OOOOa Compliance Plan - Production

Diaphragm Pumps

LOCATION COUNTY

Thunderstruck Belmont (OH)

911 ADDRESS 61111 Chestnut Level Rd. - Belmont, OH 43718

WELL NAMES 2H-A / 4H / 6H / 8H / 10H-A

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	July 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTALL DATE	July 2016
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No

Comments	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP , length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard Profire 2100 BMS.
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DIAPHRAGM PUMPS - THUNDERSTRUCK

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M To (-MARTHEW G. FOR 10/20/17Cory Harris, P.E.
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CORYA-HARRIS E-82396



40 CFR Subpart OOOOa Compliance Plan - Production

Diaphragm Pumps

<u>LOCATION</u>

Tuna Nut

911 ADDRESS

40583 Fitzgerald Rd. - Bethesda, OH 43719

COUNTY Belmont (OH)

WELL NAMES 1H/3H/5H/7H

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	June 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? — Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

NO. OF DIAPHRAGM PUMPS	1
INSTÄLL DATE	June 2017
APPLICATION	Heat trace/insulation on dehy units
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No

Comments	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
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DIAPHRAGM PUMPS - TUNA NUT

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OF OH

CORY A. HARRIS E-82396

10/20/17

Rice Drilling D, LLC NSPS Subpart OOOOa Annual Report

Fugitive Components at Well Sites

					Monitoring Survey
Well Site	Street Address	City	County	State	Records Included?
Big Dawg	53780 Gallaher Road	Powhatan Point	Belmont	ОН	8/24/2017
Big Foot	64569 McKelvey Road	Belmont	Belmont	ОН	9/20/2017
Blue Thunder	44052 Water Tower Road	Belmont	Belmont	ОН	7/7/2017
Bounty Hunter	42617 Water Tower Road	Belmont	Belmont	ОН	8/23/2017
Dr Awkward	39142 Everett Turner Dory Mill Road	Bethesda	Belmont	ОН	8/22/2017
Dragons Breath	59055 Dysart Woods Road	Belmont	Belmont	ОН	8/30/2017
Haymaker	ymaker 59327 Hunter-Bethesda Road		Belmont	ОН	8/16/2017
Iron Warrior	42178 Noon Road	Belmont	Belmont	ОН	8/23/2017
Junkyard Dog	53059 Dusty Lane	Beallsville	Belmont	ОН	8/24/2017
Madusa	41882 Township Road 192	Belmont	Belmont	ОН	8/16/2017
Monster Mutt	53333 Kanzigg Road	Beallsville	Belmont	ОН	8/24/2017
Spitfire	54089 Gallaher Road	Powhatan Point	Belmont	ОН	8/24/2017
Taco Cat	59578 Pleasant Ridge Road	Belmont	Belmont	ОН	8/16/2017
Thrasher	44244 Belmont-Centerville Road	Belmont	Belmont	ОН	8/23/2017
Thunderstruck	61111 Chestnut Level Road	Belmont	Belmont	ОН	8/22/2017
Tuna Nut	40583 Fitzgerald Road	Bethesda	Belmont	ОН	8/22/2017



Rice Drilling D LLC LDAR Inspection Conducted on August 24, 2017 Big Dawg Well Pad 1HA, 3HA, 5H, 7H



l Dane St. Clarksburg, WV, 26301 304-624-0989 www.premierenergyservices.com



Rice Drilling D LLC

Big Dawg 1HA, 3HA, 5H, 7H Leaking Components Report

Inspection Conducted on 08/24/2017

Total Leaking Components	11
Total repairs not made within 30 days	ប

Leak#	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
BIGD-20170824-001	7H Well Head Casing Transducer	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
BIGD-20170824-002	Fuel Skid 2 Phase Sight Glass	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
BIGD-20170824-003	7H GPU Run I High- Low Quick Exhaust	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
BIGD-20170824-004	7H GPU Run I Supply Line 90	OGI	FLIR GF 320	8/24/2017	9/23/2017	9/1/2017	1st Retaped	9/1/2017	YES
BIGD-20170824-005	7H GPU Run 2 High- Low Quick Exhaust	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Replaced	8/24/2017	YES
BIGD-20170824-006	7H GPU Run 2 ESD Diaphragm	OGI	FLIR GF 320	8/24/2017	9/23/2017	9/1/2017	1st Replaced	9/1/2017	YES
BIGD-20170824-007	7H GPU Run 2 Union	OGI	FLIR GF 320	8/24/2017	9/23/2017	9/1/2017	1st Retaped	9/1/2017	YES
BIGD-20170824-008	3HA GPU Run 2 High- Low Quick Exhaust	OGI	FLIR GF 320	8/24/2017	9/23/2017	9/1/2017	1st Replaced	9/1/2017	YES
BIGD-20170824-009	3HA GPU Run 1 Union	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
BIGD-20170824-010	1HA GPU Run 2 ESD Diaphragm	OGI	FUR GF 320	8/24/2017	9/23/2017	9/1/2017	1st Replaced	9/1/2017	YES
BIGD-20170824-011	IHA GPU Run 2 Sminless Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES

Inspection Personnel	OGI Certification Number				
Chris Moses Jr	163753				



WELLPAD	Big Dawg wellp	Big Dawg wellpad						
ON-SITE CONTACT	Justin Stogner							
DATE TESTED	8/24/2017	START TIME	0800	END TIME	1130			
SKY CONDITIONS	Clear	AMBIENT TEMP	77	WIND SPEED	3			

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/24/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	Chris Moses
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

	LEAKS DETECTED (Attach additional sheets if necessary)						
Lo	ocation Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <u>For Each</u> Attempt		
1	7H Well Head casing Transducer	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened		
2	Fuel Skid 2 Phase Sight Glass	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened		
3	7H GPU Run 1 High- Low Quick Exhaust	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened		
4	7H GPU Run 1 Supply Line 90	8/24/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Retaped		
5	7H GPU Run 2 High- Low Quick Exhaust	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Replaced		
6	7H GPU Run 2 ESD Diaphragm	8/24/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Replaced		

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	5
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	√
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0



AT LEAST ONE STILL IMAGE IS ATTACHED (<)	<u> </u>
ALL STILL IMAGES ARE DATED AND GIS ENABLED (</th <th></th>	
LEAKER STILL IMAGES ARE ATTACHED (or N/A)	V
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	
DELAY OF REPAIR FORMS COMPLETE (or N/A)	N/A
*If either plan or path were not followed, please include a written description and explanation	n with this form.

 $Leak\% = \frac{e^{ak} \times 100\%}{Count_{Est}}$

LEAKER COUNT	11
ESTIMATED COMPONENT COUNT*	1073
LEAK PERCENT**	1.0

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart Wipopulation count factors.

Signature: _______Date: 24 A-9/3 7207

ADDITIONAL OHIO CALCULATION:

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.



	LEAKS DETECTED (Attach additional sheets if necessary)							
Lo	ocation Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <u>For Fach</u> Attempt			
7	7H GPU Run 2 Union	8/24/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Retaped			
8	3HA GPU Run 2 High- Low Quick Exhaust	8/24/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Replaced			
9	3HA GPU Run 1 Union	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	I st Tightened			
10	1HA GPU Run 2 ESD Diaphragm	8/24/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Replaced			
11	IHA GPU Run 2 Stainless Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	I st Tightened			

Initial Site Photo

Location: Well Head

Date & Time: 8/24/2017 8:30:40 AM

Geolocation: N 39° 51' 40.13", W 80° 52' 47.63"

http://maps.google.com?z=17&t=k&q=39.8611,-80.8799



Camera Verification Photo

Location: GPU Stack

Date & Time: 8/24/2017 8:32:05 AM

Geolocation: N 39° 51' 40.13", W 80° 52' 47.63"

http://maps.google.com?z=17&t=k&q=39.8611,-80.8799



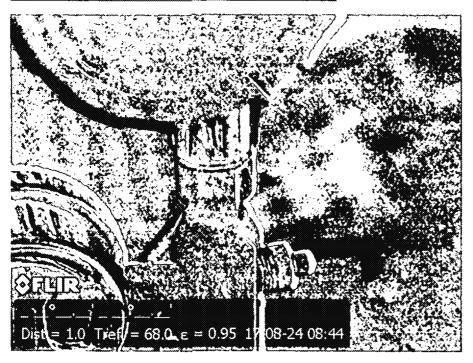
BIGD-20170824-001IR Leaking

Location: 7H Well Head Casing Transducer

Date & Time: 8/24/2017 8:44:13 AM

Geolocation: N 39° 51' 40.13", W 80° 52' 47.63"

http://maps.google.com?z=17&t=k&q=39.8611,-80.8799



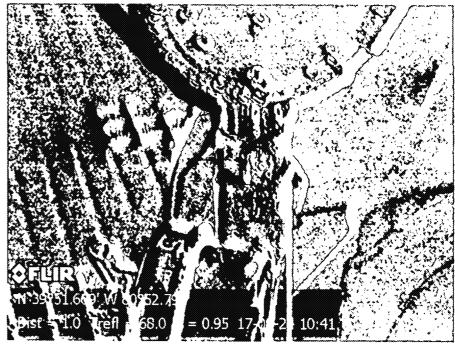
BIGD-20170824-001IR Repaired

Location: 7H Well Head Casing Transducer

Date & Time: 8/24/2017 10:41:48 AM

Geolocation: N 39° 51' 40.13", W 80° 52' 47.63"

http://maps.google.com?z=17&t=k&q=39.8611,-80.8799



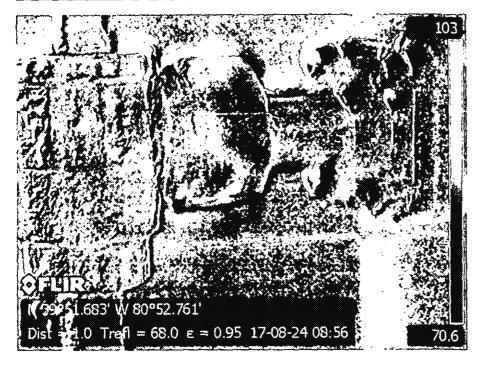
BIGD-20170824-002IR Leaking

Location: Fuel Skid 2 Phase Sight Glass

Date & Time: 8/24/2017 8:56:28 AM

Geolocation: N 39° 51' 40.98", W 80° 52' 45.68"

http://maps.google.com?z=17&t=k&q=39.8614,-80.8794



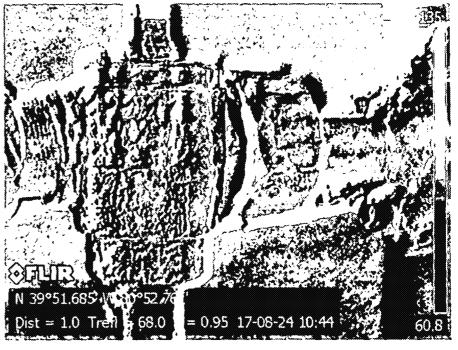
BIGD-20170824-002IR Repaired

Location: Fuel Skid 2 Phase Sight Glass

Date & Time: 8/24/2017 10:44:59 AM

Geolocation: N 39° 51' 41.11", W 80° 52' 45.67"

http://maps.google.com?z=17&t=k&q=39.8614,-80.8794



BIGD-20170824-003IR Leaking

Location: 7H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/24/2017 9:17:18 AM

Geolocation: N 39° 51' 39.92", W 80° 52' 46.09" http://maps.google.com?z=17&t=k&q=39.8611,-80.8795



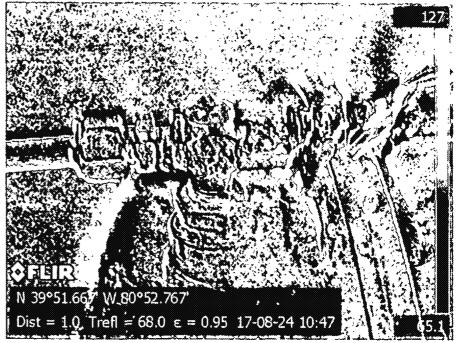
BIGD-20170824-003IR Repaired

Location: 7H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/24/2017 10:47:09 AM

Geolocation: N 39° 51' 40.03", W 80° 52' 46.05"

http://maps.google.com?z=17&t=k&q=39.8611,-80.8795



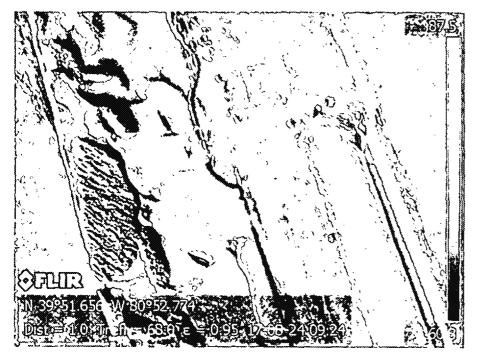
BIGD-20170824-004IR Leaking

Location: 7H GPU Run 1 Supply Line 90

Date & Time: 8/24/2017 9:24:18 AM

Geolocation: N 39° 51' 39.37", W 80° 52' 46.42"

http://maps.google.com?z=17&t=k&q=39.8609,-80.8796



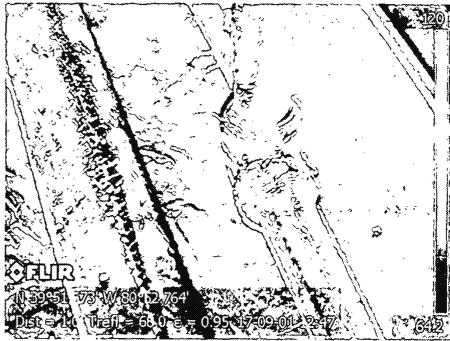
BIGD-20170824-004IR Repaired

Location: 7H GPU Run 1 Supply Line 90

Date & Time: 9/1/2017 12:47:16 PM

Geolocation: N 39° 51' 40.36", W 80° 52' 45.84"

http://maps.google.com?z=17&t=k&q=39.8612,-80.8794

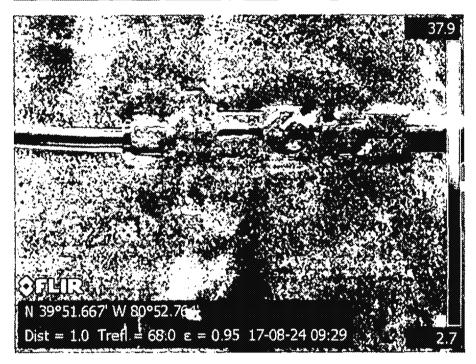


BIGD-20170824-005IR Leaking

Location: 7H GPU Run 2 High- Low Quick Exhaust

Date & Time: 8/24/2017 9:29:22 AM

Geolocation: N 39° 51' 40.03", W 80° 52' 45.86" http://maps.google.com?z=17&t=k&q=39.8611,-80.8794



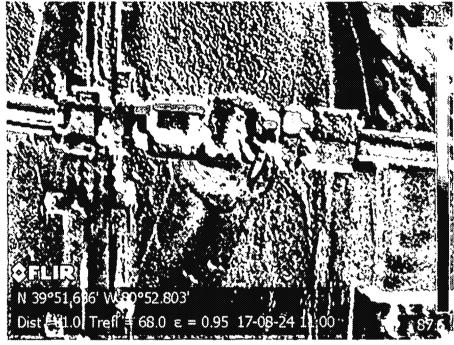
BIGD-20170824-005IR Repaired

Location: 7H GPU Run 2 High- Low Quick Exhaust

Date & Time: 8/24/2017 11:00:24 AM

Geolocation: N 39° 51' 38.19", W 80° 52' 48.19"

http://maps.google.com?z=17&t=k&q=39.8606,-80.8801



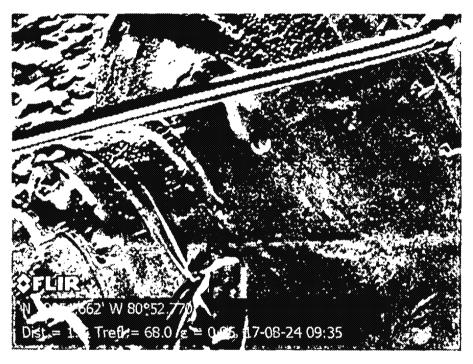
BIGD-20170824-006IR Leaking

Location: 7H GPU Run 2 ESD Diaphragm

Date & Time: 8/24/2017 9:35:29 AM

Geolocation: N 39° 51′ 39.72″, W 80° 52′ 46.21″

http://maps.google.com?z=17&t=k&q=39.8610,-80.8795



BIGD-20170824-006IR Repaired

Location: 7H GPU Run 2 ESD Diaphragm

Date & Time: 9/1/2017 12:50:23 PM

Geolocation: N 39° 51' 39.89", W 80° 52' 46.31"

http://maps.google.com?z=17&t=k&q=39.8611,-80.8795



BIGD-20170824-007IR Leaking

Location: 7H GPU Run 2 Union Date & Time: 8/24/2017 9:49:09 AM

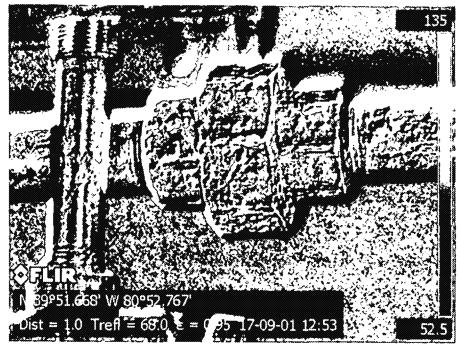
Geolocation: N 39° 51' 39.91", W 80° 52' 45.92" http://maps.google.com?z=17&t=k&q=39.8611,-80.8794



BIGD-20170824-007IR Repaired

Location: 7H GPU Run 2 Union Date & Time: 9/1/2017 12:53:07 PM

Geolocation: N 39° 51' 40.07", W 80° 52' 46.01" http://maps.google.com?z=17&t=k&q=39.8611,-80.8794



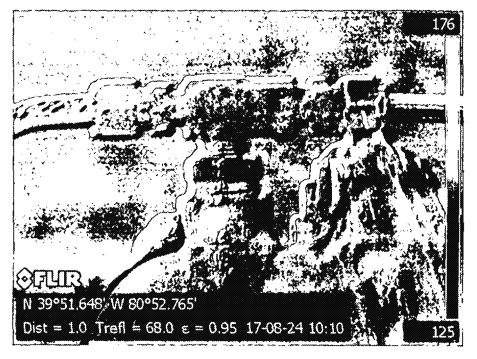
BIGD-20170824-008IR Leaking

Location: 3HA GPU Run 2 High- Low Quick Exhaust

Date & Time: 8/24/2017 10:10:12 AM

Geolocation: N 39° 51' 38.89", W 80° 52' 45.91"

http://maps.google.com?z=17&t=k&q=39.8608,-80.8794



BIGD-20170824-008IR Repaired

Location: 3HA GPU Run 2 High- Low Quick Exhaust

Date & Time: 9/1/2017 1:26:58 PM

Geolocation: N 39° 51' 38.77", W 80° 52' 45.98" http://maps.google.com?z=17&t=k&q=39.8608,-80.8794

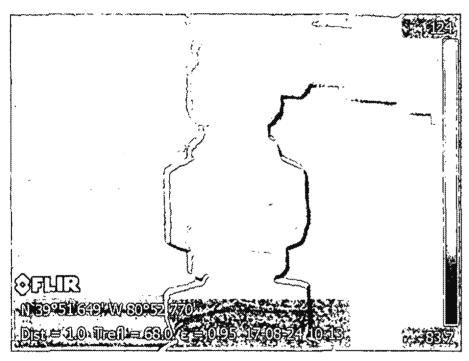


BIGD-20170824-009IR Leaking

Location: 3HA GPU Run I Union Date & Time: 8/24/2017 10:13:47 AM

Geolocation: N 39° 51′ 38.94″, W 80° 52′ 46.21″

http://maps.google.com?z=17&t=k&g=39.8608,-80.8795

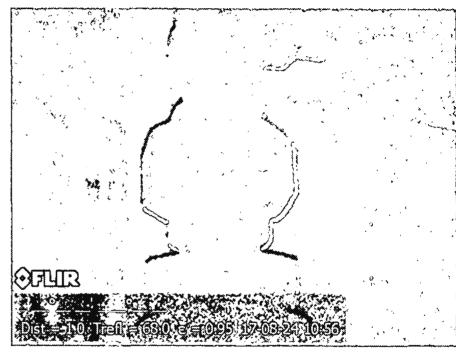


BIGD-20170824-009IR Repaired

Location: 3HA GPU Run 1 Union Date & Time: 8/24/2017 10:56:27 AM

Geolocation: N 39° 51' 38.94", W 80° 52' 46.21"

http://maps.google.com?z=17&t=k&q=39.8608,-80.8795



BIGD-20170824-010IR Leaking

Location: 1HA GPU Run 2 ESD Diaphragm

Date & Time: 8/24/2017 10:26:43 AM

Geolocation: N 39° 51' 38.60", W 80° 52' 46.01"

http://maps.google.com?z=17&t=k&q=39.8607,-80.8794

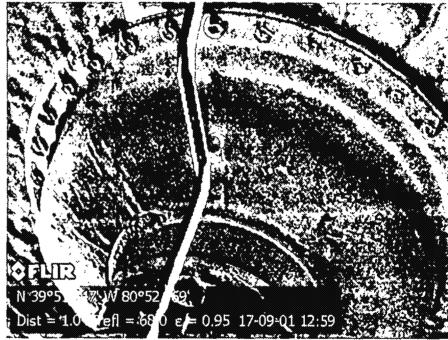


BIGD-20170824-010IR Repaired

Location: 1HA GPU Run 2 ESD Diaphragm

Date & Time: 9/1/2017 12:59:07 PM

Geolocation: N 39° 51' 38.81", W 80° 52' 46.12" http://maps.google.com?z=17&t=k&q=39.8608,-80.8795



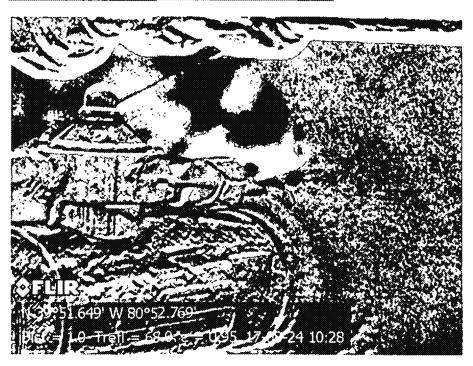
BIGD-20170824-011IR Leaking

Location: 1HA GPU Run 2 Stainless Fitting

Date & Time: 8/24/2017 10:28:11 AM

Geolocation: N 39° 51' 38.95", W 80° 52' 46.13"

http://maps.google.com?t=17&t=k&q=39.8608,-80.8795



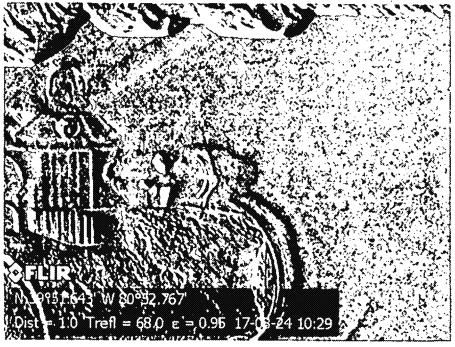
BIGD-20170824-011IR Repaired

Location: 1HA GPU Run 2 Stainless Fitting

Date & Time: 8/24/2017 10:29:42 AM

Geolocation: N 39° 51' 38.56", W 80° 52' 46.01"

http://maps.google.com?z=17&t=k&q=39.8607,-80.8794



LDAR FLIR Monitoring Form - Production



WELLPAD	Bigfoot	Bigfoot			
ON-SITE CONTACT	Adam Mallett	Adam Mallett			
DATE TESTED	9/20/17	START TIME	11:25	END TIME	13:00
SKY CONDITIONS	Cloudy	AMBIENT TEMP	71°	WIND SPEED	5 mph

CAMERA MODEL	GFx320
CAMERA ID NUMBER	SN 74900102
CAMERA CERTIFICATION DATE	2/27/2017
DAILY VERIFICATION DATE	9/20/17
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Rice Energy
MONITORING TECHNICIAN	Nevin Edwards
TECHNICIAN CERTIFIED? (Y/N)	Υ
TECHNICIAN YEARS OF EXPERIENCE	1.5 years

	LEAKS DETECTED (Attach additional sheets if necessary)						
Location Description		Date Date Camera Model Detected Repaired and ID for Rescan		Corrective Action Description For Each Attempt			
1	Dehy Motor Valve Stainless Fitting	9/20/17	9/20/17	GFx320 74900102	Tightened fitting		
2	4H Run 1 Fuel Supply Stainless Fitting	9/20/17	9/20/17	GFx320 74900102	Tightened fitting		
3	6H Run 1 Regulator Stainless fitting	9/20/17	9/20/17	GFx320 74900102	Tightened fitting		
4							
5							
6							

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (~)	N/A
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0

LDAR FLIR Monitoring Form - Production



NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0
AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	4
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	4
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	✓
DELAY OF REPAIR FORMS COMPLETE (or N/A)	N/A

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{Count_{Leak}}{Count_{Est}} \times 100\%$

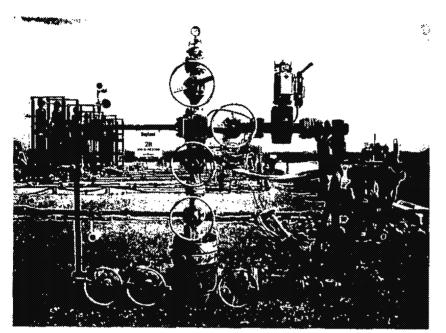
LEAKER COUNT	3
ESTIMATED COMPONENT COUNT*	1591
LEAK PERCENT**	0.19%

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

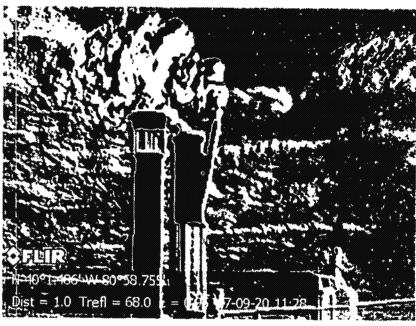
Signature: 1/w 8/8 Date: 9/21/17

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

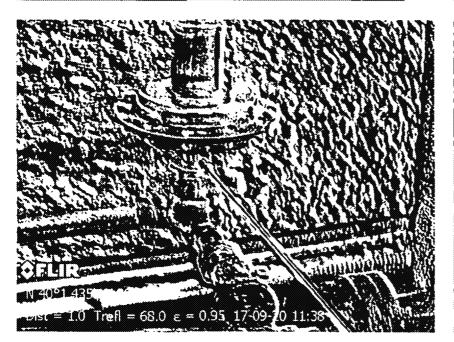
Initial Site Photo



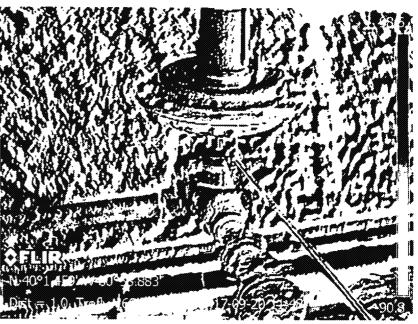
<u>Camera Verification Photo</u>



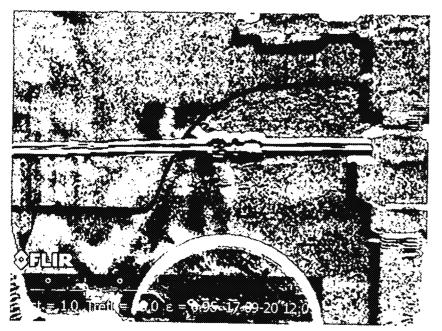
Dehy Motor Valve Stainless Fitting Leak



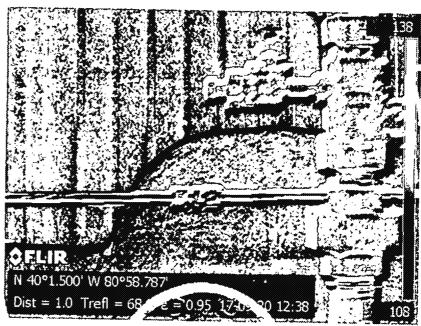
Dehy Motor Valve Stainless Fitting Repair



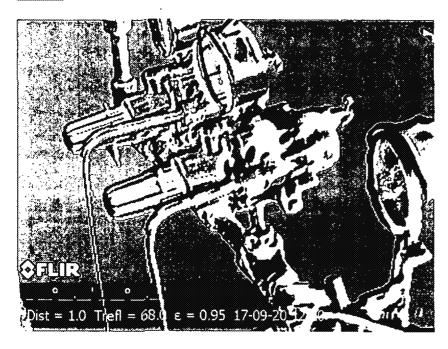
4H Run 1 Fuel Supply Stainless Fitting Leak



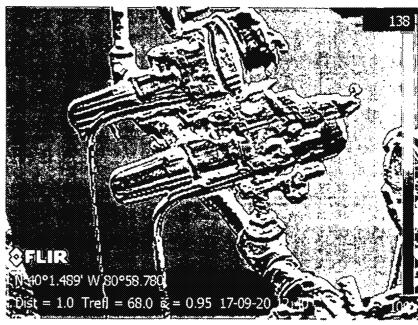
4H Run 1 Fuel Supply Stainless Fitting Repair



6H Run 1 Fuel Supply Stainless Fitting Leak



6H Run 1 Fuel Supply Stainless Fitting Repair



LDAR Form



	WELLPAD	Blue Thunder Wellpad		
DATE TESTED July 7 and July 21, 2016		July 7 and July 21, 2016		
	ON-SITE CON	NTAGT	Frank King	

LEAK DETECTION EQUIPMENT	GasFindIR HSX	TESTING COMPANY	Environmental Resources Management (ERM)
MANUFACTURER CERTIFICATION DATE	7/29/2015	TESTING COMPLETED BY	Oliver Dugas
DAILY VERIFICATION DATE	7/7/16 and 7/21/16	TECHNICIAN CERTIFICATION DATE	2/12/2015

	LEAKS DETECTED (Attach additional sheets if necessary)					
Location Description		Date Detected	Date Repaired	Corrective Action Description		
1	12H – run 1: Stainless fitting above burner.	7/7/16	7/7/16	Tightened fitting.		
2	Stainless fitting.	7/7/16	7/7/16	Tightened fitting.		
3	10H – run 2: Weep holes around Hi-Lo.	7/7/16	7/21/16	Diaphragm was replaced.		
4						
5						

LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	✓
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

For Ohio wellpads, complete following calculation. If Leak Percent is greater than 2.0%, reduce monitoring frequency to quarterly.

 $\textit{Leak\%} = \frac{\textit{Count}_{\textit{Leak}}}{\textit{Count}_{\textit{Est}}} \times 100\%$

Leaker Count	3
Estimated Component Count	464
(from Emissions Permitting Specialist)	404
Leak Percent	0.65%

Signature: Oliver Dugare

Date: <u>7/28/2016</u>

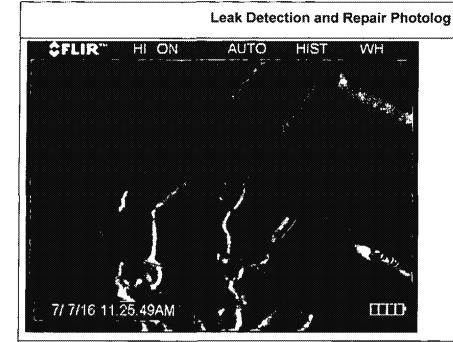


Photo 1: 12H – run 1: Stainless fitting above burner leak.

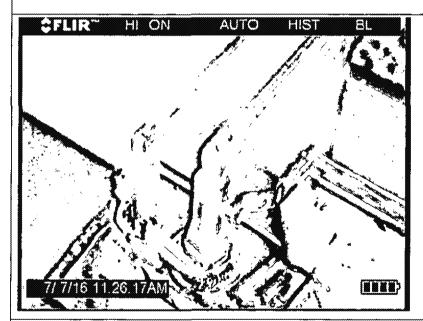


Photo 2: 12H – run 1: Stainless fitting above burner repair.

LDAR Form



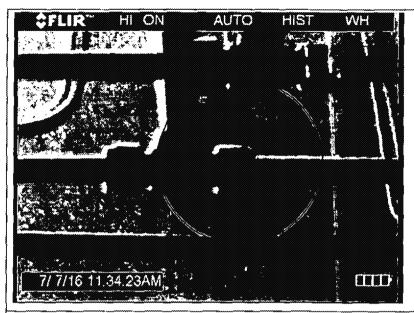


Photo 3: Stainless fitting leak.

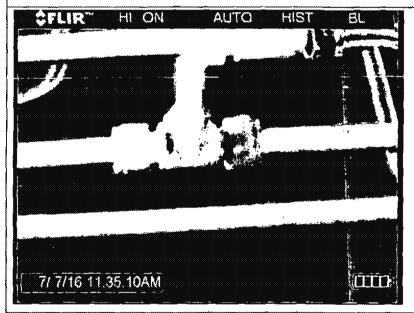


Photo 4: Stainless fitting repair.

LDAR Form



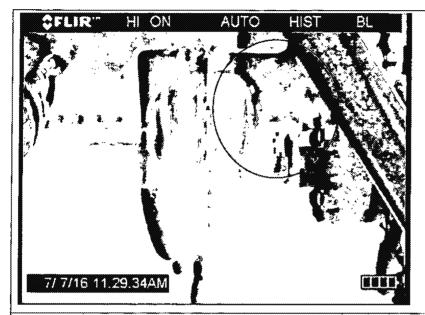


Photo 5: 10H – run 2: Weep hole leaks around Hi-Lo.

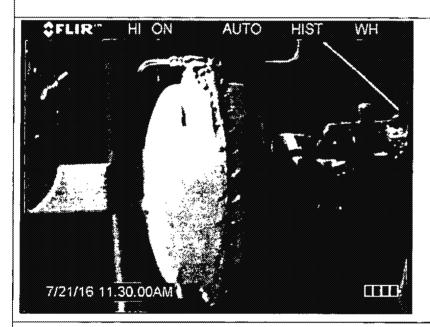


Photo 6: 10H - run 2: Hi-Lo repair.



Rice Drilling D LLC LDAR Inspection Conducted on August 23, 2017 Bounty Hunter Well Pad 2H, 4H, 6H, 8H



1 Dane St. Clarksburg, WV, 26301 304-624-0989 www.premierenergyservices.com



Rice Drilling D LLC

Bounty Hunter 2H, 4H, 6H, 8H Leaking Components Report

Inspection Conducted on 08/23/2017

Total Leaking Components	2
Total repairs not made within 30 days	0

		Testing	Testing	Inspection	Final Repair		Corrective Action		Repair confirmed
Leak#	Location Description	Method	Equipment	Date	Deadline	Repair Date	Description	OGI Retest Date	with OGI?
BOUN-20170823-001	TEG Fuel Gas Union	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Tightened	8/23/2017	YES
BOUN-20170823-002	2H GPU Run 2 Fuel Gas Union	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Tightened	8/23/2017	YES

Inspection Personnel	OGI Certification Number
Chris Moses Ir	163753



WELLPAD	Bounty Hunter	Bounty Hunter wellpad				
ON-SITE CONTACT	Jed Marshall	ed Marshall				
DATE TESTED	8/23/2017	START TIME	0745	END TIME	1030	
SKY CONDITIONS	Cloudy	AMBIENT TEMP	64	WIND SPEED	8mph	

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/23/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	Chris Moses
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

Lc	cation Description Date Date Detected Repaired		Camera Model and ID for Rescan	Corrective Action Description For Eacl Attempt	
1	TEG Fuel Gas Union	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
2	2H GPU Run 2 Fuel Gas Union	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	I st Tightened
3					
4					
5					
6					

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (</th <th>7</th>	7
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0



AT LEAST ONE STILL IMAGE IS ATTACHED (V)	<u> </u>
ALL STILL IMAGES ARE DATED AND GIS ENABLED (~)	4
LEAKER STILL IMAGES ARE ATTACHED (or N/A)	<u> </u>
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	Ý
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (<)	V
DELAY OF REPAIR FORMS COMPLETE (or N/A)	N/A

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

	~ x * c . m	×	~	8. 10° C 10° C C
ADDITIONAL	OHIO	CAL	.CUL	AHON:

 $Leak\% = \frac{t_{Leak}}{Count_{Est}} \times 100\%$

LEAKER COUNT	2
ESTIMATED COMPONENT COUNT*	1437
LEAK PERCENT**	.14

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

Date: 23 August 2017

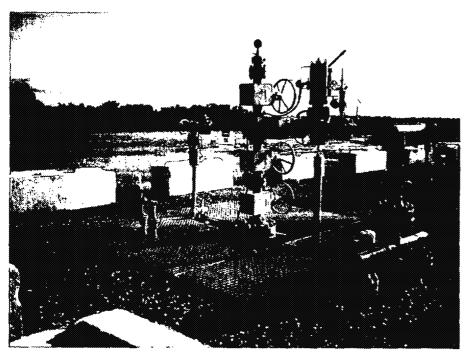
^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Initial Site Photo

Location: Well Head

Date & Time: 8/23/2017 8:46:45 AM Geolocation: N 40° 1' 21.48", W 81° 2' 20.04"

http://maps.google.com?z=17&t=k&q=40.0226,-81.0389

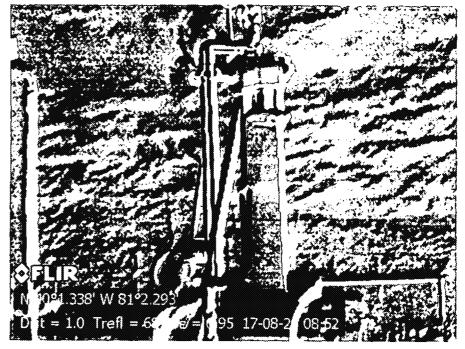


Camera Verification Photo

Location: Dehy Stack

Date & Time: 8/23/2017 8:52:23 AM Geolocation: N 40° 1' 20.27", W 81° 2' 17.60"

http://maps.google.com?z=17&t=k&q=40.0223,-81.0382



BOUN-20170823-001IR Leaking

Location: TEG Fuel Gas Union
Date & Time: 8/23/2017 8:57:38 AM
Geolocation: N 40° 1' 21.10", W 81° 2' 4.50"

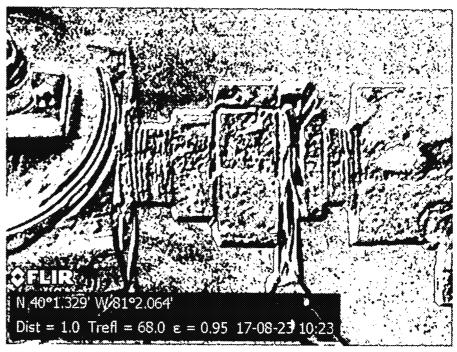
http://maps.google.com?z=17&t=k&q=40.0225,-81.0346



BOUN-20170823-001IR Repaired

Location: TEG Fuel Gas Union
Date & Time: 8/23/2017 10:24:02 AM
Geolocation: N 40° 1' 19.75", W 81° 2' 3.79"

http://maps.google.com?z=17&t=k&q=40.0222,-81.0344

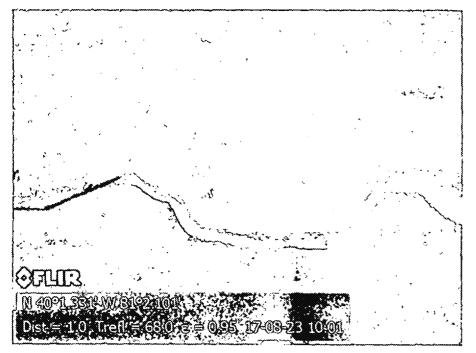


BOUN-20170823-002IR Leaking

Location: 2H GPU Run 2 Fuel Gas Union

Date & Time: 8/23/2017 10:01:09 AM Geolocation: N 40° 1' 19.85", W 81° 2' 6.07"

http://maps.google.com?z=17&t=k&q=40.0222,-81.0350

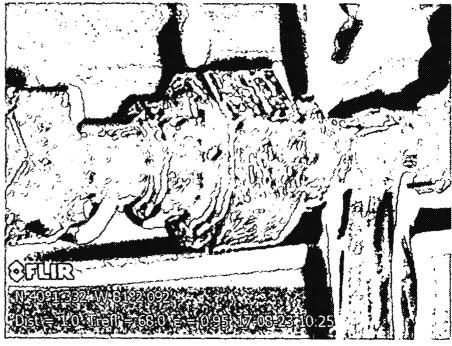


BOUN-20170823-002IR Repaired

Location: 2H GPU Run 2 Fuel Gas Union

Date & Time: 8/23/2017 10:25:27 AM Geolocation: N 40° 1' 19.91", W 81° 2' 5.51"

http://maps.google.com?z=17&t=k&q=40.0222,-81.0349





Rice Drilling D LLC LDAR Inspection Conducted on August 22, 2017 Dr Awkward Well Pad 1H, 3H



I Dane St. Clarksburg, WV, 26301 304-624-0989 www.premierenergyservices.com



Rice Drilling D LLC

Dr Awkward 1H, 3H Leaking Components Report

Inspection Conducted on 08/22/2017

	7.7.
Total Leaking Components	10
Total repairs not made within 30 days	0
	<u> </u>

Leak #	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
DRAW-20170822-001	1H GPU Run 2 High- Low Valve	OGI	FLIR GF 320	8/22/2017	9/21/2017	9/1/2017	1st Replaced	9/1/2017	YES
DRAW-20170822-002	1H GPU Run 1 High- Low Valve	OGI	FLIR GF 320	8/22/2017	9/21/2017	9/1/2017	1st Replaced	9/1/2017	YES
DRAW-20170822-003	1H GPU Run 2 Fuel Supply Union	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
DRAW-20170822-004	1H GPU Run 1 Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
DRAW-20170822-005	1H GPU Run 1 Main Gas Supply Line	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
DRAW-20170822-006	1H GPU Run 1 Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
DRAW-20170822-007	3H GPU Run 2 Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
DRAW-20170822-008	3H GPU Run 2 Pilot Gas	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
DRAW-20170822-009	3H GPU Run 1 Fuel Gas Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
DRAW-20170822-010	3H GPU Run 1 Fuel Supply to Shutdown	OGI	FLIR GF 320	8/22/2017	9/21/2017	9/1/2017	1st Retaped	9/1/2017	YES

Inspection Personnel	OGI Certification Number
Chris Moses Jr	163753



WELLPAD	Dr Awkward we	r Awkward wellpad						
ON-SITE CONTACT	Jed Marshall							
DATE TESTED	8/22/2017	START TIME	0725	END TIME	1030			
SKY CONDITIONS	Clear	AMBIENT TEMP	70	WIND SPEED	6			

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016 ·
DAILY VERIFICATION DATE	8/22/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC	
MONITORING TECHNICIAN	Chris Moses	
TECHNICIAN CERTIFIED? (Y/N)	YES	
TECHNICIAN YEARS OF EXPERIENCE	2 Months	

	LEAKS DETECTED (Attach additional sheets if necessary)					
Lo	cation Description Date Date Repaired		Camera Model and ID for Rescan	Corrective Action Description <u>For Each</u> Attempt		
1	1H GPU Run 2 High-	8/22/2017	9/1/2017	FLIR GF 320	l st Replaced	
	Low Valve			S/N: 44401600		
2	IH GPU Run 1 High-	8/22/2017	9/1/2017	FLIR GF 320	1st Replaced	
4	Low Valve			S/N: 44401600		
3	1H GPU Run 2 Fuel	8/22/2017	8/22/2017	FLIR GF 320	1 st Tightened	
•	Supply Union			S/N: 44401600		
4	1H GPU Run 1	8/22/2017	8/22/2017	FLIR GF 320	1 st Tightened	
**	Stainless Fitting			S/N: 44401600		
5	IH GPU Run 1 Main	8/22/2017	8/22/2017	FLIR GF 320	1 st Tightened	
÷.	Gas Supply Line			S/N: 44401600		
6	1H GPU Run I	8/22/2017	8/22/2017	FLIR GF 320	I st Tightened	
Q	Stainless Fitting			S/N: 44401600		

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	3
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED ()	✓
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0



AT LEAST ONE STILL IMAGE IS ATTACHED (<)	√
ALL STILL IMAGES ARE DATED AND GIS ENABLED (<)	<u></u>
LEAKER STILL IMAGES ARE ATTACHED (or N/A)	
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	*
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (*)	
DELAY OF REPAIR FORMS COMPLETE (/ or N/A)	N/A
*If either plan or path were not followed, please include a written description and explanation	on with this form.

ADDITIONAL OHIO CALCULATION:

 $\frac{Leak\% = \frac{eak}{} \times 100\%}{Count_{Est}}$

LEAKER COUNT	10
ESTIMATED COMPONENT COUNT	624
LEAK PERCENT**	1,6

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subport Wipopulation count factors.

Signature:

_____Date: 22 August 2017

ED_004016M_00016023-00076

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.



	LEAKS DETECTED (Attach additional sheets if necessary)						
Lc	ocation Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description For Each Attempt		
7	3H GPU Run 2 Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	I st Tightened		
8	3H GPU Run 2 Pilot Gas	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	I st Tightened		
9	3H GPU Run 1 Fuel Gas Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	I st Tightened		
10	3H GPU Run 1 Fuel Supply to Shutdown	8/22/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Retaped		

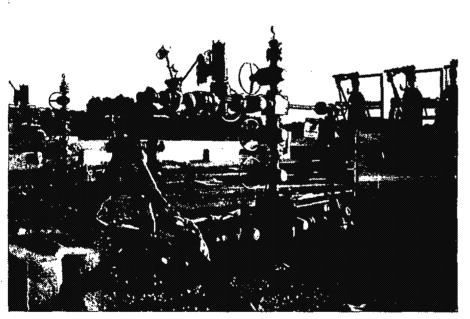
Initial Site Photo

Location: Well Head

Date & Time: 8/22/2017 8:29:11 AM

Geolocation: N 39° 57' 5.04", W 81° 5' 47.94"

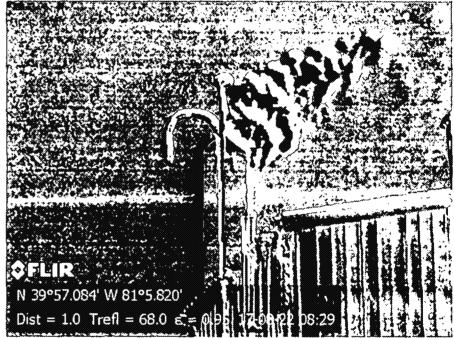
http://maps.google.com?z=17&t=k&q=39.9514,-81.0967



Camera Verification Photo

Location: GPU Stack

Date & Time: 8/22/2017 8:29:53 AM Geolocation: N 39° 57' 5.04", W 81° 5' 49.19"

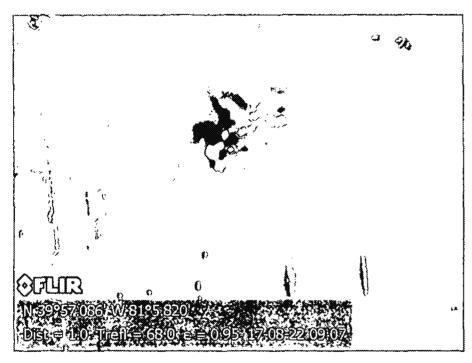


DRAW-20170822-001IR Leaking

Location: 1H GPU Run 2 High- Low Valve

Date & Time: 8/22/2017 9:08:01 AM Geolocation: N 39° 57' 5.15", W 81° 5' 49.22"

http://maps.google.com?z=17&t=k&q=39.9514,-81.0970



DRAW-20170822-001IR Repaired

Location: 1H GPU Run 2 High- Low Valve

Date & Time: 9/1/2017 9:01:54 AM

Geolocation: N 39° 57' 5.00", W 81° 5' 49.36"



DRAW-20170822-002IR Leaking

Location: 1H GPU Run 1 High- Low Valve

Date & Time: 8/22/2017 9:08:54 AM Geolocation: N 39° 57' 4.96", W 81° 5' 48.92"

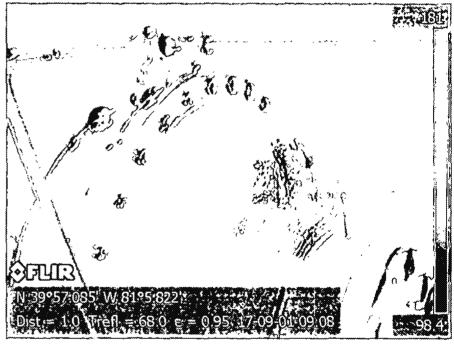
http://maps.google.com?z=17&t=k&q=39.9514,-81.0969



DRAW-20170822-002IR Repaired

Location: 1H GPU Run 1 High- Low Valve

Date & Time: 9/1/2017 9:08:20 AM Geolocation: N 39° 57' 5.08", W 81° 5' 49.32"



DRAW-20170822-003IR Leaking

Location: 1H GPU Run 2 Fuel Supply Union

Date & Time: 8/22/2017 9:09:36 AM Geolocation: N 39° 57' 5.11", W 81° 5' 49.18"

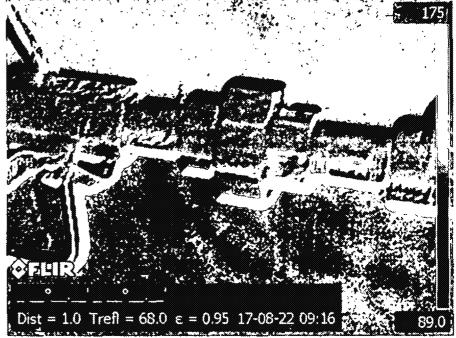
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DRAW-20170822-003IR Repaired

Location: 1H GPU Run 2 Fuel Supply Union

Date & Time: 8/22/2017 9:17:00 AM Geolocation: N 39° 57' 5.11", W 81° 5' 49.18"



DRAW-20170822-004IR Leaking

Location: 1H GPU Run 1 Stainless Fitting

Date & Time: 8/22/2017 9:10:28 AM Geolocation: N 39° 57' 5.09", W 81° 5' 49.36"

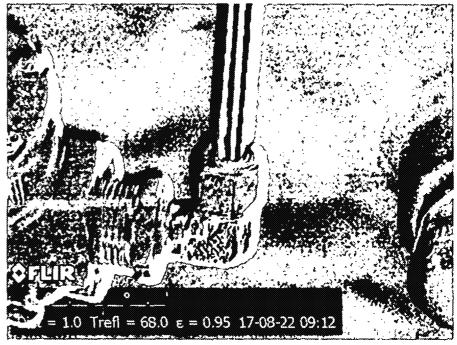
http://maps.google.com?z=17&t=k&q=39.9514,-81.0970



DRAW-20170822-004IR Repaired

Location: 1H GPU Run 1 Stainless Fitting

Date & Time: 8/22/2017 9:12:56 AM Geolocation: N 39° 57' 5.09", W 81° 5' 49.36"

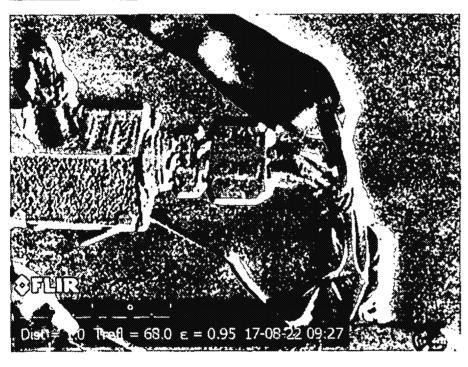


DRAW-20170822-005IR Leaking

Location: 1H GPU Run 1 Main Gas Supply Line

Date & Time: 8/22/2017 9:27:55 AM Geolocation: N 39° 57' 5.09", W 81° 5' 49.36"

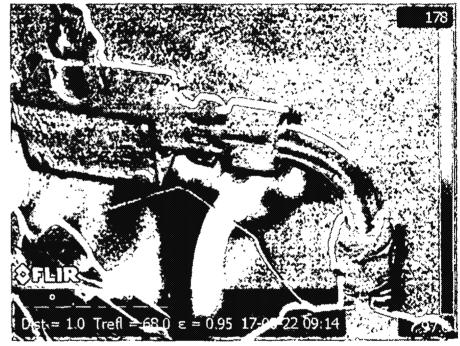
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DRAW-20170822-005IR Repaired

Location: 1H GPU Run I Main Gas Supply Line

Date & Time: 8/22/2017 9:14:35 AM Geolocation: N 39° 57' 5.09", W 81° 5' 49.36"

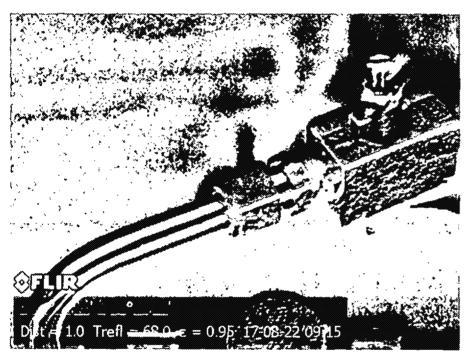


DRAW-20170822-006IR Leaking

Location: 1H GPU Run 1 Stainless Fitting

Date & Time: 8/22/2017 9:15:07 AM Geolocation: N 39° 57' 5.09", W 81° 5' 49.36"

http://maps.google.com?z=17&t=k&q=39.9514,-81.0970



DRAW-20170822-006IR Repaired

Location: 1H GPU Run 1 Stainless Fitting

Date & Time: 8/22/2017 9:28:31 AM Geolocation: N 39° 57' 5.09", W 81° 5' 49.36"



DRAW-20170822-007IR Leaking

Location: 3H GPU Run 2 Stainless Fitting

Date & Time: 8/22/2017 9:38:53 AM Geolocation: N 39° 57' 4.76", W 81° 5' 49.20"

http://maps.google.com?z=17&t=k&q=39.9513,-81.0970

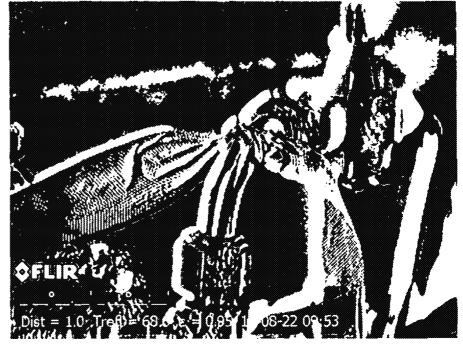


DRAW-20170822-007IR Repaired

Location: 3H GPU Run 2 Stainless Fitting

Date & Time: 8/22/2017 9:53:53 AM

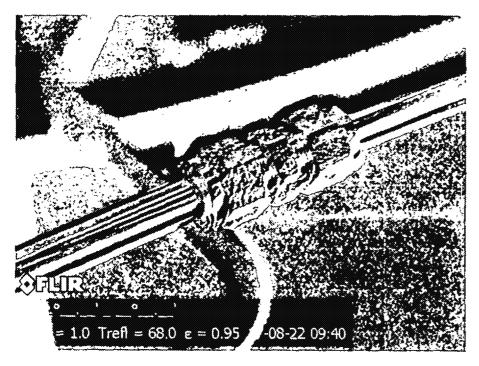
Geolocation: N 39° 57' 4.76", W 81° 5' 49.20"



DRAW-20170822-008IR Leaking

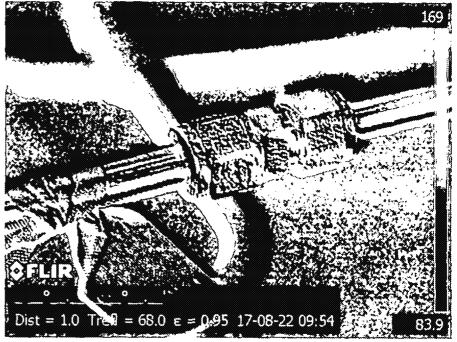
Location: 3H GPU Run 2 Pilot Gas
Date & Time: 8/22/2017 9:40:26 AM
Geolocation: N 39° 57' 4.76", W 81° 5' 49.20"

http://maps.google.com?z=17&t=k&q=39.9513,-81.0970



DRAW-20170822-008IR Repaired

Location: 3H GPU Run 2 Pilot Gas
Date & Time: 8/22/2017 9:55:00 AM
Geolocation: N 39° 57' 4.76", W 81° 5' 49.20"



DRAW-20170822-009IR Leaking

Location: 3H GPU Run 1 Fuel Gas Stainless Fitting

Date & Time: 8/22/2017 9:42:19 AM Geolocation: N 39° 57' 4.76", W 81° 5' 49.20"

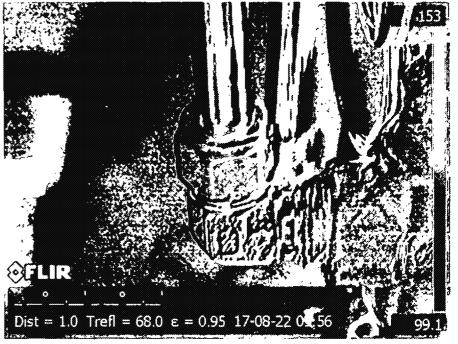
http://maps.google.com?z=17&t=k&q=39.9513,-81.0970



DRAW-20170822-009IR Repaired

Location: 3H GPU Run 1 Fuel Gas Stainless Fitting

Date & Time: 8/22/2017 9:56:40 AM Geolocation: N 39° 57' 4.76", W 81° 5' 49.20"



DRAW-20170822-010IR Leaking

Location: 3H GPU Run 1 Fuel Supply to Shutdown

Date & Time: 8/22/2017 9:44:37 AM Geolocation: N 39° 57' 4.76", W 81° 5' 49.20"

http://maps.google.com?z=17&t=k&q=39.9513,-81.0970



DRAW-20170822-010IR Repaired

Location: 3H GPU Run 1 Fuel Supply to Shutdown

Date & Time: 9/1/2017 9:06:07 AM

Geolocation: N 39" 57' 4.76", W 81° 5' 49.20"





Rice Drilling D LLC

LDAR Inspection Conducted on August 30, 2017 Dragons Breath Well Pad 1H, 3H, 5H, 7H



1 Dane St. Clarksburg, WV, 26301 304-624-0989 www.premierenergyservices.com



Rice Drilling D LLC

Dragons Breath 1H, 3H, 5H, 7H Leaking Components Report

Inspection Conducted on 08/30/2017

Total Leaking Components	8
Total repairs not made within 30 days	0

Leak#	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirme with OGI?
DRAG-20170830-001	7H GPU Run 2 High- Low Grease Fitting	OGI	FLIR GF 320	8/30/2017	9/29/2017	8/30/2017	1st Tightened	8/30/2017	YES
DRAG-20170830-002	7H GPU Run 1 Low Level Switch Stainless Fitting	<u>OGI</u>	FLIR GF 320	8/30/2017	9/29/2017	3/30/2017	1st Tightened	8/30/2017	YES
DRAG-20170830-003	7H GPU Run 1 Low Level Switch Stainless Fitting	OGI	FLIR GF 320	8/30/2017	9/29/2017	9/1/2017	1st Replaced	9/1/2017	YES
DRAG-20170830-004	5H GPU Run 1 Low Level Switch Stainless Fitting	OGI	FLIR GF 320	8/30/2017	9/29/2017	9/1/2017	1st Retaped 2nd Tightened	9/1/2017	YES
DRAG-20170830-005	5H GPU Run 2 Stainless Fitting	OGI	FLIR GF 320	8/30/2017	9/29/2017	8/30/2017	1st Tightened	8/30/2017	YES
DRAG-20170830-006	3H GPU Run 2 Union	OGI	FLIR GF 320	8/30/2017	9/29/2017	8/30/2017	1st Tightened	8/30/2017	YES
DRAG-20170830-007	3H GPU Run 1 Stainless Fitting	QGI	FLIR GF 320	8/30/2017	9/29/2017	8/30/2017	1st Tightened	8/30/2017	YES
ORAG-20170830-008	Dehy I Thermal well Gauge	OGI	FLIR GF 320	8/30/2017	9/29/2017	9/1/2017	1st Replaced	9/1/2017	YES

Inspection Personnel	OGI Certification Number
Chris Moses Ir	163753



WELLPAD	Dragons Breath								
ON-SITE CONTACT	Jed Marshall			***************************************					
DATE TESTED	8/30/2017	START TIME	0730	END TIME	1130				
SKY CONDITIONS	Cloudy	AMBIENT TEMP	59	WIND SPEED	1				

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/30/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC				
MONITORING TECHNICIAN	Chris Moses				
TECHNICIAN CERTIFIED? (Y/N)	YES				
TECHNICIAN YEARS OF EXPERIENCE	2 Months				

	LEAKS DETECTED (Attach additional sheets if necessary)							
Lo	cation Description Date Detected		Date Camera Model Repaired and ID for Rescan		Corrective Action Description <u>For Each</u> Attempt			
1	7H GPU Run 2 High- Low Grease Fitting	8/30/2017	8/30/2017	FLIR GF 320 S/N: 44401600	1st Tightened			
2	7H GPU Run 1 Low Level Switch Stainless Fitting	8/30/2017	8/30/2017	FLIR GF 320 S/N: 44401600	1 st Tightened			
J	7H GPU Run 1 Low Level Switch Stainless Fitting	8/30/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Retaped 2 nd Tightened			
	5H GPU Run I Low Level Switch Stainless Fitting	8/30/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Retaped			
5	5H GPU Run 2 Stainless Fitting	8/30/2017	8/30/2017	FLIR GF 320 S/N: 44401600	I st Tightened			
6	3H GPU Run 2 Union	8/30/2017	8/30/2017	FLIR GF 320 S/N: 44401600	1 st Tightened			

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	3
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	,
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0



AT LEAST ONE STILL IMAGE IS ATTACHED (V)	√ .
ALL STILL IMAGES ARE DATED AND GIS ENABLED (<)	
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	7
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	√
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

 $\frac{1}{Leak\% = \frac{eak}{Count_{Est}}} \times 100\%$

LEAKER COUNT	8
ESTIMATED COMPONENT COUNT*	1519
LEAK PERCENT**	.52

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

** If Leak Percent is greater than 2,0%, increase monitoring frequency to quarterly.

Signature:

Date: 9/1/17



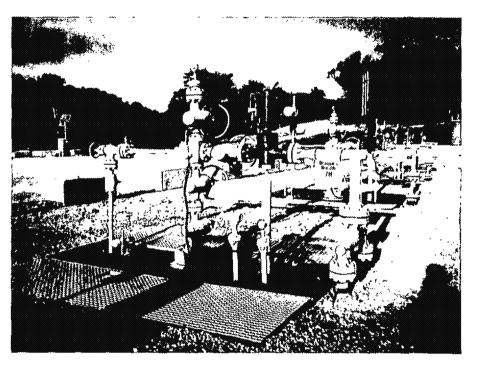
LEAKS DETECTED (Attach additional sheets if necessary)								
Location Description Date Detected Detected Detected Detected Detected Detected Repaired Camera Model and ID for Rescan Description Description Attempt								
7	3H GPU Run 1 Stainless Fitting	8/30/2017	8/30/2017	FLIR GF 320 S/N: 44401600	l ^s Tightened			
8	Dehy I Thermal well Gauge	8/30/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Retaped			

Initial Site Photo

Location: Well Head

Date & Time: 8/30/2017 8:15:27 AM Geolocation: N 39° 57' 4.32", W 81° 1' 3.30"

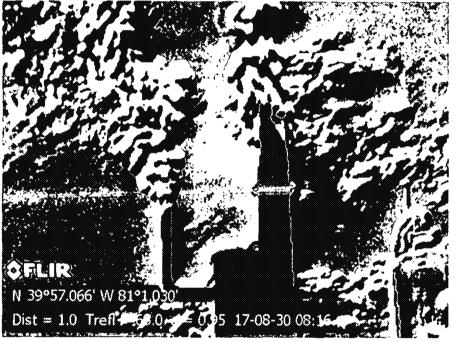
http://maps.google.com?z=17&t=k&q=39.9512,-81.0176



Camera Verification Photo

Location: Dehy Stack

Date & Time: 8/30/2017 8:16:38 AM Geolocation: N 39° 57' 3.99", W 81° 1' 1.79"



DRAG-20170830-001IR Leaking

Location: 7H GPU Run 2 High- Low Grease Fitting

Date & Time: 8/30/2017 8:20:38 AM Geolocation: N 39° 57' 5.26", W 81° 1' 3.35"

http://maps.google.com?z=17&t=k&q=39.9515,-81.0176



DRAG-20170830-001IR Repaired

Location: 7H GPU Run 2 High- Low Grease Fitting

Date & Time: 8/30/2017 10:58:45 AM Geolocation: N 39° 57' 5.70", W 81° 1' 3.22"

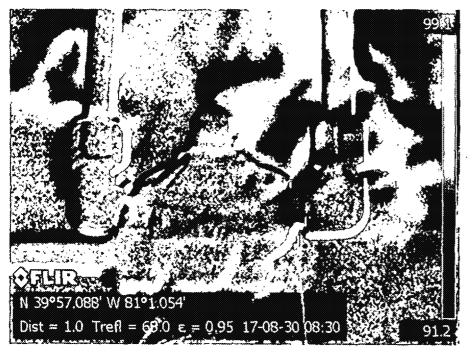


DRAG-20170830-002IR Leaking

Location: 7H GPU Run 1 Low Level Switch Stainless Fitting

Date & Time: 8/30/2017 8:30:27 AM Geolocation: N 39° 57' 5.28", W 81° 1' 3.25"

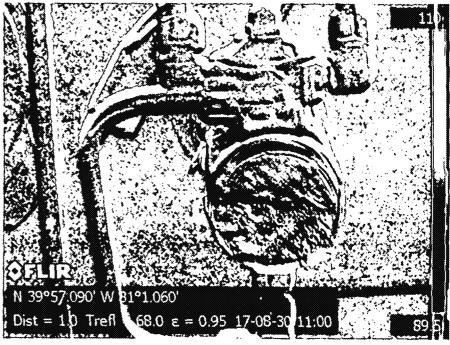
http://maps.google.com?z=17&t=k&q=39.9515,-81.0176



DRAG-20170830-002IR Repaired

Location: 7H GPU Run 1 Low Level Switch Stainless Fitting

Date & Time: 8/30/2017 11:00:20 AM Geolocation: N 39° 57' 5.42", W 81° 1' 3.61"



DRAG-20170830-003IR Leaking

Location: 7H GPU Run 1 Low Level Switch Stainless Fitting

Date & Time: 8/30/2017 8:33:12 AM Geolocation: N 39° 57' 5.22", W 81° 1' 3.29"

http://maps.google.com?z=17&t=k&q=39.9515,-81.0176



DRAG-20170830-003IR Repaired

Location: 7H GPU Run 1 Low Level Switch Stainless Fitting

Date & Time: 9/1/2017 10:54:21 AM Geolocation: N 39° 57' 5.22", W 81° 1' 3.29"

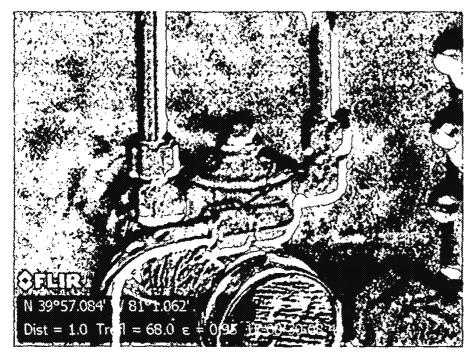


DRAG-20170830-004IR Leaking

Location: 5H GPU Run 1 Low Level Switch Stainless Fitting

Date & Time: 8/30/2017 8:40:22 AM Geolocation: N 39° 57' 5.06", W 81° 1' 3.72"

http://maps.google.com?z=17&t=k&q=39.9514,-81.0177

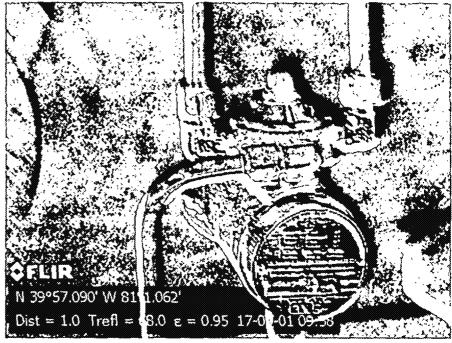


DRAG-20170830-004IR Repaired

Location: 5H GPU Run I Low Level Switch Stainless Fitting

Date & Time: 9/1/2017 9:58:58 AM

Geolocation: N 39° 57' 5.41", W 81° 1' 3.72"

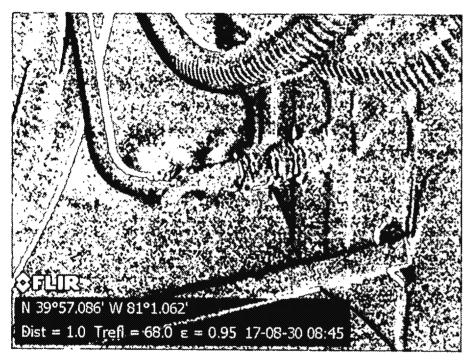


DRAG-20170830-005IR Leaking

Location: 5H GPU Run 2 Stainless Fitting

Date & Time: 8/30/2017 8:45:38 AM Geolocation: N 39° 57' 5.17", W 81° 1' 3.73"

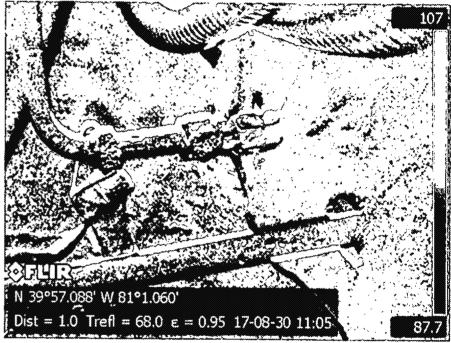
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DRAG-20170830-005IR Repaired

Location: 5H GPU Run 2 Stainless Fitting

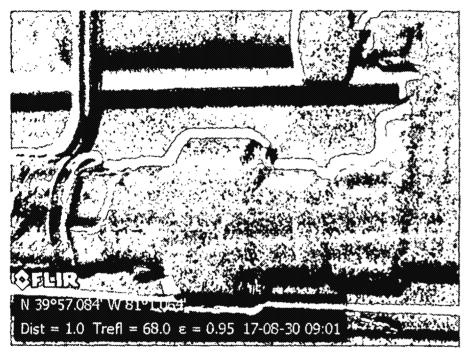
Date & Time: 8/30/2017 11:05:43 AM Geolocation: N 39° 57' 5.27", W 81° 1' 3.58"



DRAG-20170830-006IR Leaking

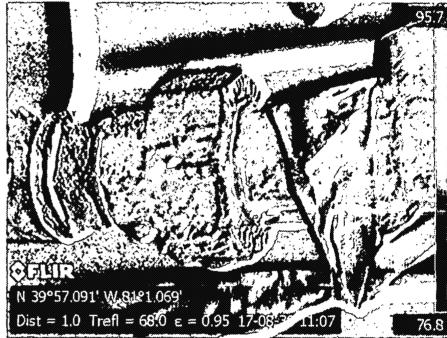
Location: 3H GPU Run 2 Union
Date & Time: 8/30/2017 9:01:08 AM
Geolocation: N 39° 57' 5.04", W 81° 1' 3.85"

http://maps.google.com?z=17&t=k&q=39.9514,-81.0177



DRAG-20170830-006IR Repaired

Location: 3H GPU Run 2 Union
Date & Time: 8/30/2017 11:07:51 AM
Geolocation: N 39° 57' 5.43", W 81° 1' 4.10"

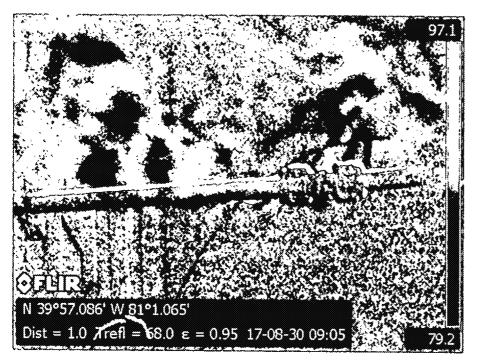


DRAG-20170830-007IR Leaking

Location: 3H GPU Run 1 Stainless Fitting

Date & Time: 8/30/2017 9:05:42 AM Geolocation: N 39° 57' 5.18", W 81° 1' 3.88"

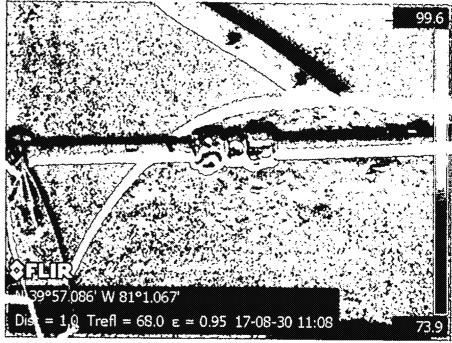
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DRAG-20170830-007IR Repaired

Location: 3H GPU Run 1 Stainless Fitting

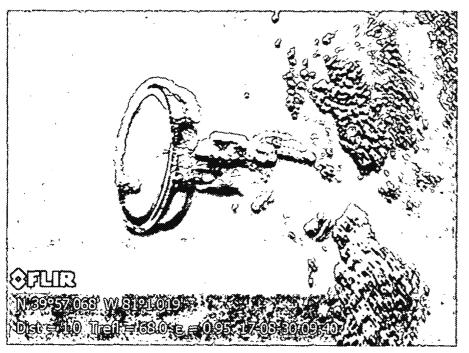
Date & Time: 8/30/2017 11:08:26 AM Geolocation: N 39° 57' 5.17", W 81° 1' 4.01"



DRAG-20170830-008IR Leaking

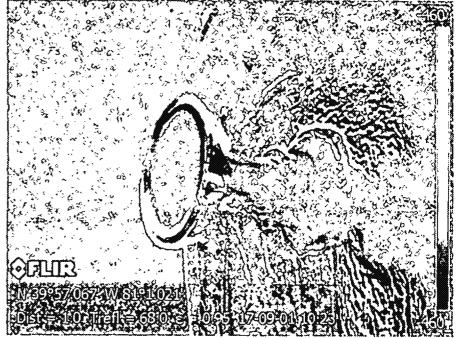
Location: Dehy t Thermal well Gauge Date & Time: 8/30/2017 9:40:49 AM Geolocation: N 39° 57' 4.06", W 81° 1' 1.13"

http://maps.google.com?z=17&t=k&q=39.9511,-81.0170



DRAG-20170830-008IR Repaired

Location: Dehy I Thermal well Gauge Date & Time: 9/1/2017 10:23:47 AM Geolocation: N 39° 57' 4.01", W 81° 1' 1.24"





Rice Drilling D, LLC
LDAR Inspection Conducted on August 16, 2017
Haymaker Well Pad
1H, 3H



l Dane St. Clarksburg, WV, 26301 304-624-0989 www.premierenergyservices.com



Rice Drilling D LLC

Haymaker 1H, 3H Leaking Components Report

Inspection Conducted on 08/16/2017

Total Leaking Components	5
Total repairs not made within 30 days	0

Leak#	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
**************************************	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				Desgine	nepair Date	Cestificon	On verest nate	WILL COLL
HAYM-20170816-001	3H GPU Run 2 High Low Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	l ^s Tightened	8/16/2017	YES
HAYM-20170816-002	3H GPU Run 2 Fuel Gas Union	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	l [#] Tightened	8/16/2017	YES
HAYM-20170816-003	3H GPU Run 1 Fuel Gas Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1* Tightened	8/16/2017	YES
HAYM-20170816-004	IH GPU Run 2 High Low Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1 st Tightened	8/16/2017	YES
HAYM-20170816-005	tH GPU Run 2 Fuel Gas Union	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	I" Tightened	8/16/2017	YES

Inspection Personnel	OGI Certification Number	
Chris Moses Jr	163753	



WELLPAD	Haymaker Wellpad				
ON-SITE CONTACT	Brandon St. Clair				
DATE TESTED	8/16/2017	START TIME	1230	END TIME	1400
SKY CONDITIONS	Clear	AMBIENT TEMP	81	WIND SPEED	3mph

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/16/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC	
MONITORING TECHNICIAN	Chris Moses	
TECHNICIAN CERTIFIED? (Y/N)	YES	
TECHNICIAN YEARS OF EXPERIENCE	2 Months	

LEAKS DETECTED (Attach additional sheets if necessary)					
Lo	ocation Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <u>For Each</u> Attempt
1	3H GPU Run 2 High Low Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
2	3H GPU Run 2 Fuel Gas Union	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
3	3H GPU Run Fuel Gas Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	l st Tightened
4	IH GPU Run 2 High Low Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
5	IH GPU Run 2 Fuel Gas Union	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (*)	√
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0



AT LEAST ONE STILL IMAGE IS ATTACHED (V)	√
ALL STILL IMAGES ARE DATED AND GIS ENABLED (<)	<u> </u>
LEAKER STILL IMAGES ARE ATTACHED (or N/A)	7
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	-
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (</td <td></td>	
DELAY OF REPAIR FORMS COMPLETE (or N/A)	N/A

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{t_{Leak}}{Count_{Fot}} \times 100\%$

LEAKER COUNT	5
ESTIMATED COMPONENT COUNT*	624
LEAK PERCENT**	0.80 %

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

Signatura: /////	Date: 16 August 2017	Í
	Date, 10 /10gor cor	300

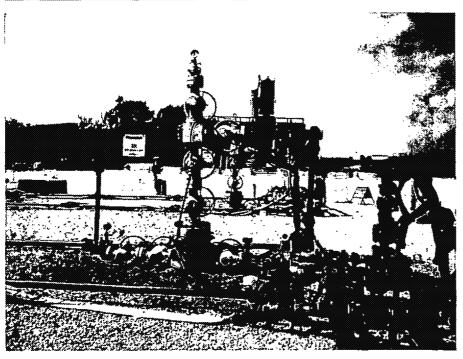
^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Initial Site Photo

Location: Well Head

Date & Time: 8/16/2017 12:42:30 PM Geolocation: N 39° 57' 5.33", W 81° 3' 4.06

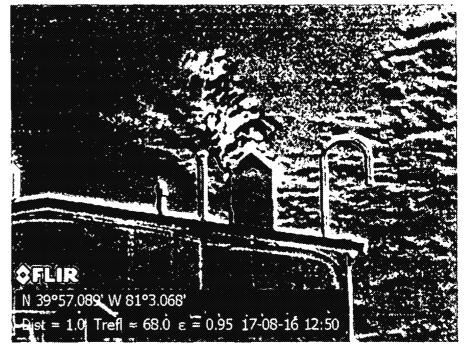
http://maps.google.com?z=17&t=k&q=39.9515,-81.0511



Camera Verification Photo

Location: GPU Stack

Date & Time: 8/16/2017 12:50:07 PM Geolocation: N 39° 57' 5.33", W 81° 3' 4.06



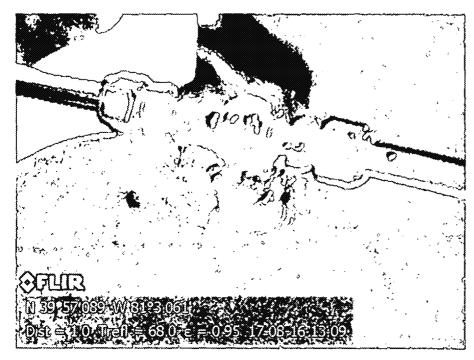
HAYM-20180816-001IR Leaking

Location: 3H GPU Run 2 High Low Stainless Fitting

Date & Time: 8/16/2017 1:10:00 PM

Geolocation: N 39° 57' 5.32", W 81° 3' 3.65"

http://maps.google.com?z=17&t=k&q=39.9515,-81.0510



HAYM-20180816-001IR Repaired

Location: 3H GPU Run 2 High Low Stainless Fitting

Date & Time: 8/16/2017 1:31:52 PM

Geolocation: N 39° 57' 5.23", W 81° 3' 3.68"



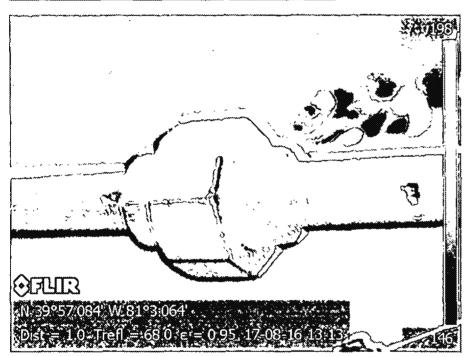
HAYM-20180816-002IR Leaking

Location: 3H GPU Run 2 Fuel Gas Union

Date & Time: 8/16/2017 1:13:11 PM

Geolocation: N 39° 57' 5.05", W 81° 3' 3.86"

http://maps.google.com?z=17&t=k&q=40.1017,-80.1260



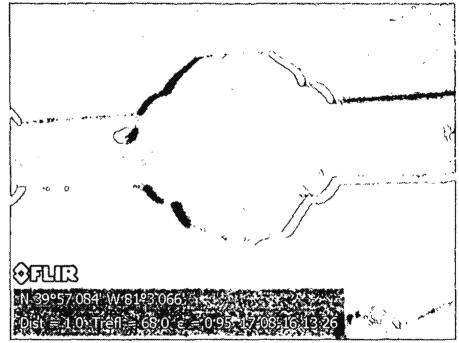
HAYM-20180816-002IR Repaired

Location: 3H GPU Run 2 Fuel Gas Union

Date & Time: 8/16/2017 1:26:03 PM

Geolocation: N 39° 57' 5.02", W 81° 3' 3.97"

http://maps.google.com?z=17&t=k&q=39.9514,-81.0511



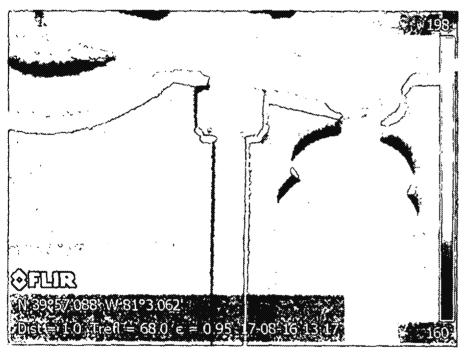
HAYM-20180816-003IR Leaking

Location: 3H GPU Run 1 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 1:17:30 PM

Geolocation: N 39° 57' 5.26", W 81° 3' 3.71"

http://maps.google.com?z=17&t=k&q=39.9515,-81.0510



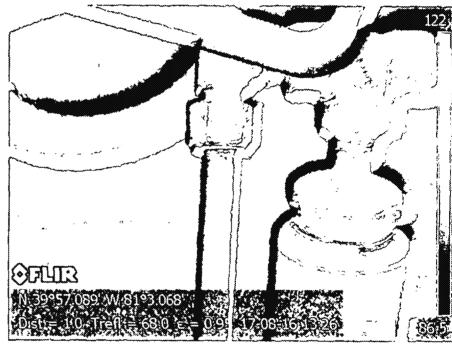
HAYM-20180816-003IR Repaired

Location: 3H GPU Run 1 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 1:26:54 PM

Geolocation: N 39° 57' 5.32", W 81° 3' 4.07"

http://maps.google.com?z=17&t=k&q=39.9515,-81.0511



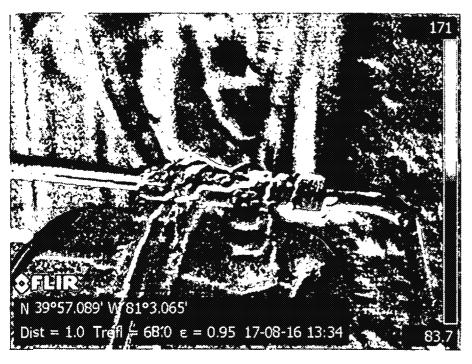
HAYM-20180816-004IR Leaking

Location: 1H GPU Run 2 High Low Stainless Fitting

Date & Time: 8/16/2017 1:34:22 PM

Geolocation: N 39° 57' 5.36", W 81° 3' 3.93"

http://maps.google.com?z=17&t=k&q=39.9515,-81.0511



HAYM-20180816-004IR Repaired

Location: 1H GPU Run 2 High Low Stainless Fitting

Date & Time: 8/16/2017 1:41:59 PM

Geolocation: N 39° 57′ 5.45″, W 81° 3′ 3.93″ http://maps.google.com?z=17&t=k&q=39.9515,-81.051



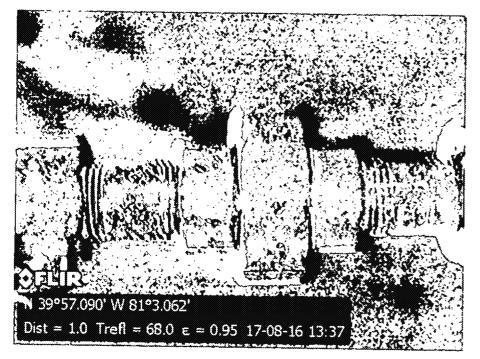
HAYM-20180816-005IR Leaking

Location: 1H GPU Run 2 Fuel Gas Union

Date & Time: 8/16/2017 1:37:51 PM

Geolocation: N 39° 57' 5,40", W 81° 3' 3,71"

http://maps.google.com?z=17&t=k&q=39.9515,-81.0510



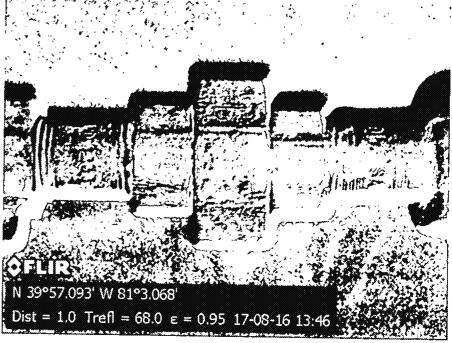
HAYM-20180816-005IR Repaired

Location: IH GPU Run 2 Fuel Gas Union

Date & Time: 8/16/2017 1:46:20 PM

Geolocation: N 39° 57' 5.61", W 81° 3' 4.10"

http://maps.google.com?z=17&t=k&q=39.9516,-81.0511





Rice Drilling D, LLC

LDAR Inspection Conducted on August 23, 2017 Iron Warrior Well Pad 2H, 4H



1 Dane St. Clarksburg, WV, 26301 304-624-0989 www.premierenergyservices.com



Rice Drilling D LLC

Iron Warrior 2H, 4H Leaking Components Report

Inspection Conducted on 08/23/2017

1	Total Leaking Components	5
	Total repairs not made within 30 days	0

		Testing	Testing	inspection	Final Repair		Corrective Action		Repair confirmed
Leak#	Location Description	Method	Equipment	Date	Deadline	Repair Date	Description	OGI Retest Date	with OGI?
IRON-20170823-001	2H GPU Run 2 Stainless Fitting	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Tightened	8/23/2017	YES
IRON-20170823-002	2H GPU Run 2 Stainless Fitting	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Replaced	8/23/2017	YES
IRON-20170823-003	2H GPU Run 2 Level Controller	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Replaced	8/23/2017	YES
IRON-20170823-004	Dehy Stainless Fitting	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Tightened	8/23/2017	YES
IRON-20170823-005	Fuel Skid Coatescent Fitter Level Controller	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Tightened	8/23/2017	YES

Inspection Personnel	OGI Certification Number		
Chris Moses Jr	163753		



WELLPAD	Iron Warrior we	on Warrior wellpad							
ON-SITE CONTACT	Jed Marshall								
DATE TESTED	8/23/2017	START TIME	1045	END TIME	1250				
SKY CONDITIONS	Couldy	AMBIENT TEMP	70	WIND SPEED	8				

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/23/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	Chris Moses
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

Location Description		on Description Date Date Detected Repaired		Camera Model and ID for Rescan	Corrective Action Description <u>For Each</u> Attempt
1	2H GPU Run 2 Stainless Fitting	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
2	2H GPU Run 2 Stainless Fitting	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	I st Replaced
3	2H GPU Run 2 Level Controller	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	1 st Replaced
4	Dehy Stainless Fitting	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	I st Tightened
5	Fuel Skid Coalescent Filter Level Controller	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	l st Tightened
6			•		

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (<)	√
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0



AT LEAST ONE STILL IMAGE IS ATTACHED (<)	··· 🗸
ALL STILL IMAGES ARE DATED AND GIS ENABLED (1)	—
LEAKER STILL IMAGES ARE ATTACHED (or N/A)	√
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	√
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	
DELAY OF REPAIR FORMS COMPLETE (✓ or N/A)	N/A

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{nt_{Leak}}{Count_{Est}}$

LEAKER COUNT	5
ESTIMATED COMPONENT COUNT*	. 788
LEAK PERCENT**	.63

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

Signature:

Date: 23 August 2017

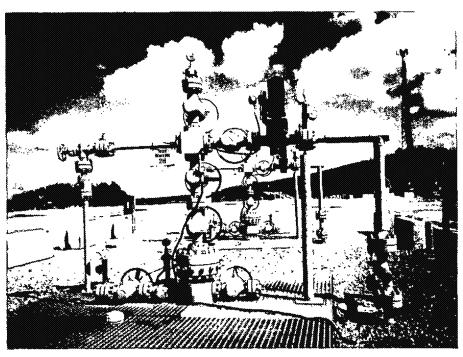
^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Initial Site Photo

Location: Well Head

Date & Time: 8/23/2017 11:01:33 AM Geolocation: N 40° 0' 56.64", W 81° 2' 38.64"

http://maps.google.com?z=17&t=k&q=40.0157,-81.0441

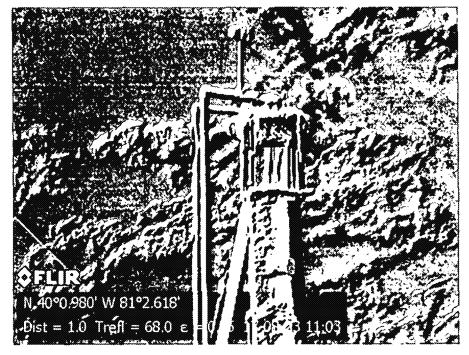


Camera Verification Photo

Location: Dehy Stack

Date & Time: 8/23/2017 11:03:41 AM Geolocation: N 40° 0' 58.77", W 81° 2' 37.09"

http://maps.google.com?z=17&t=k&q=40.0163,-81.0436



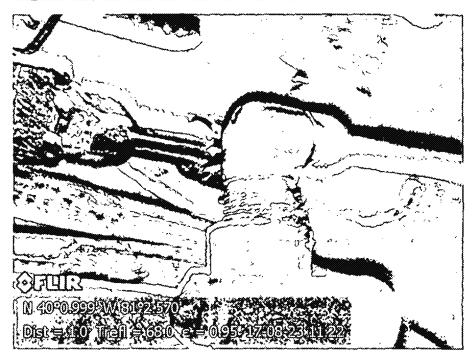
IRON-20170823-001IR Leaking

Location: 2H GPU Run 2 Stainless Fitting

Date & Time: 8/23/2017 11:22:51 AM

Geolocation: N 40° 0' 59.96", W 81° 2' 34.19"

http://maps.google.com?z=17&t=k&q=40.0167,-81.0428

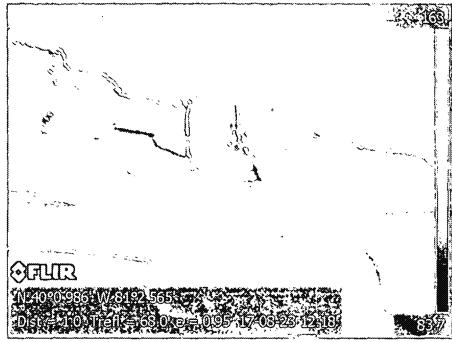


IRON-20170823-001IR Repaired

Location: 2H GPU Run 2 Stainless Fitting

Date & Time: 8/23/2017 12:19:00 PM

Geolocation: N 40° 0′ 59.15″, W 81° 2′ 33.89″ http://maps.google.com?z=17&t=k&q=40.0164,-81.0427



IRON-20170823-002IR Leaking

Location: 2H GPU Run 2 Stainless Fitting

Date & Time: 8/23/2017 11:54:03 AM

Geolocation: N 40° 0′ 59.84", W 81° 2′ 33.81" http://maps.google.com?z=17&t=k&q=40.0166,-81.0427

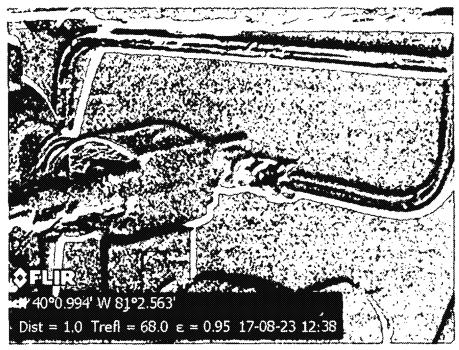


IRON-20170823-002IR Repaired

Location: 2H GPU Run 2 Stainless Fitting

Date & Time: 8/23/2017 12:38:51 PM

Geolocation: N 40° 0′ 59.66", W 81° 2′ 33.77" http://maps.google.com?z=17&t=k&q=40.0166,-81.0427



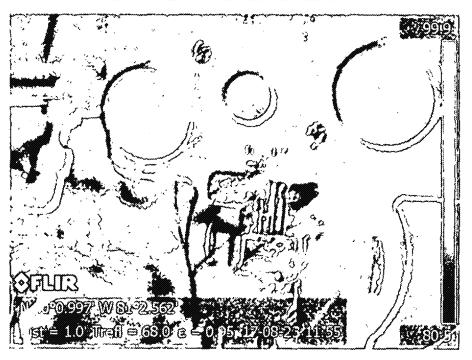
IRON-20170823-003IR Leaking

Location: 2H GPU Run 2 Level Controller

Date & Time: 8/23/2017 11:55:36 AM

Geolocation: N 40° 0' 59.83", W 81° 2' 33.71"

http://maps.google.com?z=17&t=k&q=40.0166,-81.0427

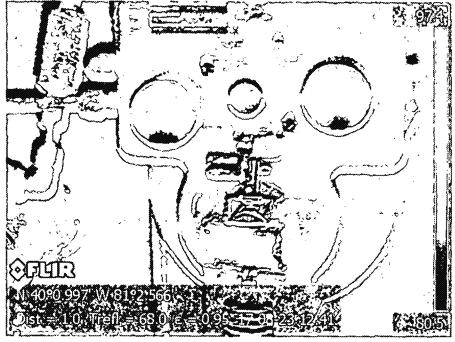


IRON-20170823-003IR Repaired

Location: 2H GPU Run 2 Level Controller

Date & Time: 8/23/2017 12:41:39 PM

Geolocation: N 40° 0′ 59.83", W 81° 2′ 33.94" http://maps.google.com?z=17&t=k&q=40.0166,-81.0428



IRON-20170823-004IR Leaking

Location: Dehy Stainless Fitting Date & Time: 8/23/2017 11:57:15 AM

Geolocation: N 40° 1' 0.82", W 81° 2' 33.43"

http://maps.google.com?z=17&t=k&q=40.0169,-81.0426



IRON-20170823-004IR Repaired

Location: Dehy Stainless Fitting
Date & Time: 8/23/2017 12:10:20 PM

Geolocation: N 40° 1' 0.89", W 81° 2' 33.26"

http://maps.google.com?z=17&t=k&q=40.0169,-81.0426



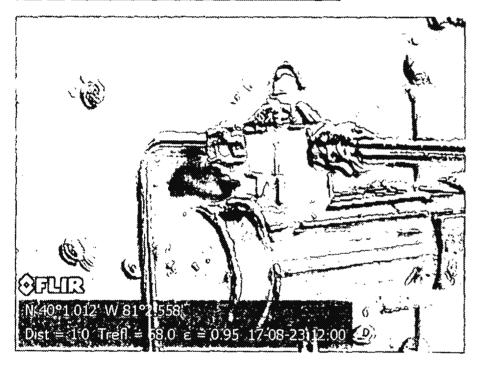
IRON-20170823-005IR Leaking

Location: Fuel Skid Coalescent Filter Level Controller

Date & Time: 8/23/2017 12:00:10 PM

Geolocation: N 40° 1' 0.72", W 81° 2' 33.50"

http://maps.google.com?z=17&t=k&q=40.0169,-81.0426



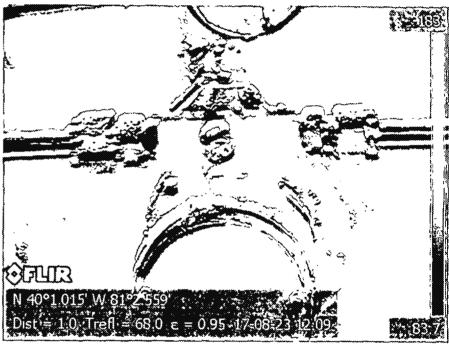
IRON-20170823-005IR Repaired

Location: Fuel Skid Coalescent Filter Level Controller

Date & Time: 8/23/2017 12:09:20 PM

Geolocation: N 40° 1' 0.90", W 81° 2' 33.52"

http://maps.google.com?z=17&t=k&q=40.0169,-81.0426





Rice Drilling D LLC LDAR Inspection Conducted on August 24, 2017 Junkyard Dog Well Pad 1H, 3H



1 Dane St. Clarksburg, WV, 26301 304-624-0989 www.premierenergyservices.com



Rice Drilling D LLC

Junkyard Dog 1H, 3H Leaking Components Report

Inspection Conducted on 08/24/2017

Total Leaking Components	6
Total repairs not made within 30 days	0

	1	Testing	Testing	Inspection	Final Repair		Corrective Action		Repair confirmed
Leak #	Location Description	Method	Equipment	Date	Deadline	Repair Date	Description	OGI Retest Date	with OGI?
JUNK-20170824-001	2H Well Head Grease Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tighted	8/24/2017	YES
JUNK-20170824-002	3H GPU Run 2 Grease Fitting	OGI	FUR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tighted	8/24/2017	YES
JUNK-20170824-003	3H GPU Run 1 High- Low Quick Exhaust	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tighted	8/24/2017	YES
JUNK-20170824-004	3H GPU Run 2 Stainless Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tighted	8/24/2017	YES
JUNK-20170824-005	1H GPU Run 2 High- Low Quick Exhaust	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Retaped	8/24/2017	YES
JUNK-20170824-008	1H GPU Run 1 Main Burner Stainless Fittin	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tighted	8/24/2017	YES

Inspection Personnel	OGI Certification Number	
Chris Moses Jr	163753	



WELLPAD	Junkyard Dog wellpad								
ON-SITE CONTACT	Justin Stoner	ustin Stoner							
DATE TESTED	8/24/2017	START TIME	1530	END TIME	1645				
SKY CONDITIONS	Clear	AMBIENT TEMP	75	WIND SPEED	9 mph				

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/24/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	Chris Moses
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

	LEAKS DETECTED (Attach additional sheets if necessary)								
Location Description		cation Description Date Detected I		n Decrintion		Camera Model and ID for Rescan	Corrective Action Description <u>For Each</u> Attempt		
1	2H Well Head Grease Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened				
2	3H GPU Run 2 Grease Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened				
3	3H GPU Run I High- Low Quick Exhaust	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened				
4	3H GPU Run 2 Stainless Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	I st Tightened				
5	IH GPU Run 2 High- Low Quick Exhaust	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Retaped				
6	IH GPU Run I Main Burner Stainless Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (</td <td>4</td>	4
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0



AT LEAST ONE STILL IMAGE IS ATTACHED (V)	V
ALL STILL IMAGES ARE DATED AND GIS ENABLED (1/2)	· ·
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	7
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	<u> </u>
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	
DELAY OF REPAIR FORMS COMPLETE (or N/A)	N/A

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{t_{l,eak}}{Count_{Est}} \times 100\%$

LEAKER COUNT	6
ESTIMATED COMPONENT COUNT*	624
LEAK PERCENT**	.96

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

Signature

Date: 24 August 2017

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

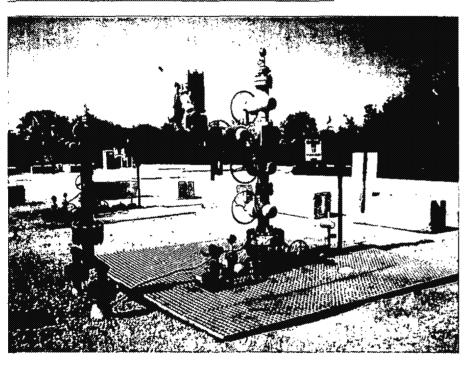
Initial Site Photo

Location: Well Head

Date & Time: 8/24/2017 4:04:35 PM

Geolocation: N 39° 51' 10.32", W 80° 54' 8.04"

http://maps.google.com?z=17&t=k&q=39.8529,-80.9022



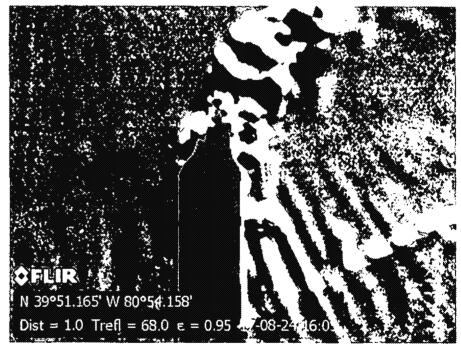
Camera Verification Photo

Location: GPU Stack

Date & Time: 8/24/2017 4:05:35 PM

Geolocation: N 39* 51' 9.89", W 80° 54' 9.46"

http://maps.google.com?z=17&t=k&q=39.8527,-80.9026



JUNK-20170824-001IR Leaking

Location: 2H Well Head Grease Fitting

Date & Time: 8/24/2017 4:09:01 PM

Geolocation: N 39° 51' 10.59", W 80° 54' 8.41"

http://maps.google.com?z=17&t=k&q=39.8529,-80.9023



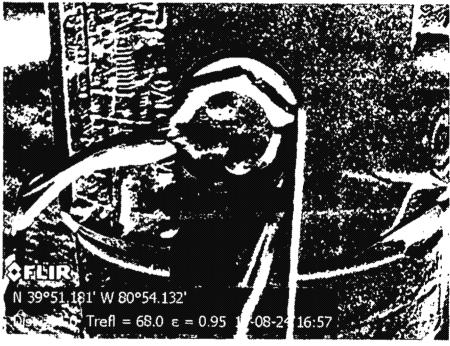
JUNK-20170824-001IR Repaired

Location: 2H Well Head Grease Fitting

Date & Time: 8/24/2017 4:57:21 PM

Geolocation: N 39° 51' 10.84", W 80° 54' 7.90"

http://maps.google.com?z=17&t=k&q=39.8530,-80.9022



JUNK-20170824-002IR Leaking

Location: 3H GPU Run 2 Grease Fitting

Date & Time: 8/24/2017 4:24:33 PM

Geolocation: N 39° 51' 10.02", W 80° 54' 9.86"

http://maps.google.com?z=17&t=k&q=39.8528,-80.9027



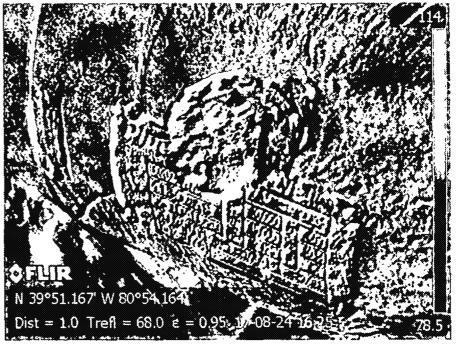
JUNK-20170824-002IR Repaired

Location: 3H GPU Run 2 Grease Fitting

Date & Time: 8/24/2017 4:25:25 PM

Geolocation: N 39° 51' 10.02", W 80° 54' 9.86"

http://maps.google.com?z=17&t=k&q=39.8528,-80.9027



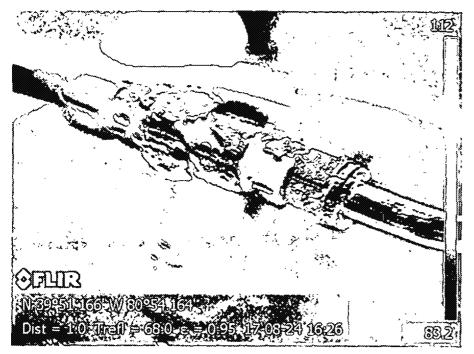
JUNK-20170824-003IR Leaking

Location: 3H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/24/2017 4:26:46 PM

Geolocation: N 39° 51' 9.97", W 80° 54' 9.83"

http://maps.google.com?z=17&t=k&q=39.8528,-80.9027

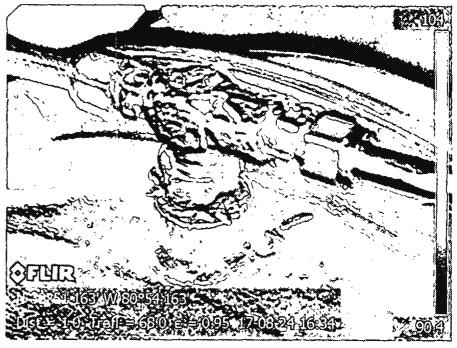


JUNK-20170824-003IR Repaired

Location: 3H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/24/2017 4:34:26 PM Geolocation: N 39° 51' 9.77", W 80° 54' 9.80"

http://maps.google.com?z=17&t=k&q=39.8527,-80.9027



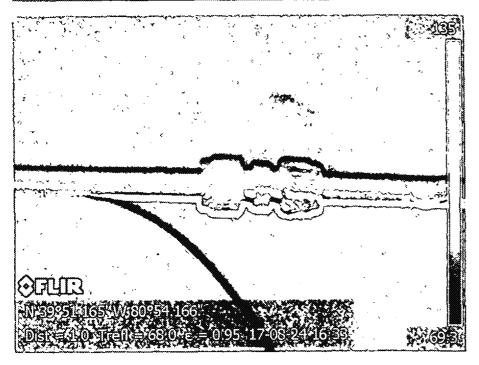
JUNK-20170824-004IR Leaking

Location: 3H GPU Run 2 Stainless Fitting

Date & Time: 8/24/2017 4:33:27 PM

Geolocation: N 39° 51' 9.90", W 80° 54' 9.94"

http://maps.google.com?z=17&t=k&q=39.8528,-80.9028

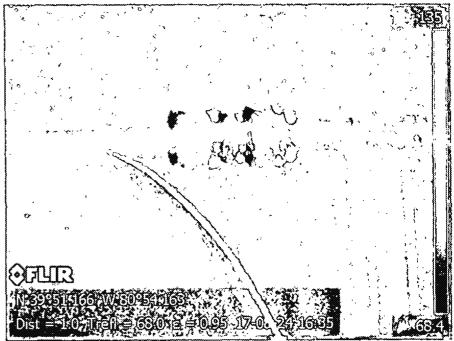


JUNK-20170824-004IR Repaired

Location: 3H GPU Run 2 Stainless Fitting

Date & Time: 8/24/2017 4:35:17 PM Geolocation: N 39° 51' 9.98", W 80° 54' 9.77"

http://maps.google.com?z=17&t=k&q=39.8528,-80.9027



JUNK-20170824-005IR Leaking

Location: 1H GPU Run 2 High- Low Quick Exhaust

Date & Time: 8/24/2017 4:39:03 PM Geolocation: N 39° 51' 9.88", W 80° 54' 9.62"

http://maps.google.com?z=17&t=k&q=39.8527,-80.9027

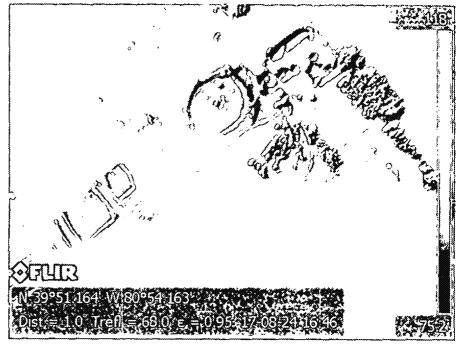


JUNK-20170824-005IR Repaired

Location: 1H GPU Run 2 High- Low Quick Exhaust

Date & Time: 8/24/2017 4:46:37 PM Geolocation: N 39° 51′ 9.82″, W 80° 54′ 9.76″

http://maps.google.com?z=17&t=k&q=39.8527,-80.9027



JUNK-20170824-006IR Leaking

Location: 1H GPU Run 1 Main Burner Stainless Fitting

Date & Time: 8/24/2017 4:44:04 PM

Geolocation: N 39° 51' 9.58", W 80° 54' 9.78"

http://maps.google.com?z=17&t=k&q=39.8527,-80.9027



JUNK-20170824-006IR Repaired

Location: 1H GPU Run I Main Burner Stainless Fitting

Date & Time: 8/24/2017 4:45:05 PM

Geolocation: N 39° 51' 9.66", W 80° 54' 9.68"

http://maps.google.com?z=17&t=k&q=39.8527,-80.9027





Rice Drilling D LLC LDAR Inspection Conducted on August 16, 2017 Madusa Well Pad 2H, 4H, 6H



1 Dane St. Clarksburg, WV, 26301 304-624-0989 www.premierenergyservices.com



Rice Drilling D LLC

Madusa 2H, 4H, 6H Leaking Components Report

Inspection Conducted on 08/16/2017

Total Leaking Components	0
Total repairs not made within 30 days	0

		Testing	Testing	Inspection	Final Repair		Corrective Action		Repair confirmed
teak#	Location Description	Method	Equipment	Date	Deadline	Repair Date	Description	OGI Retest Date	with OGI?
No Leaking Components	No Leaking Components	OGI	FLIR GF 320		9/15/2017	N/A	N/A	N/A	N/A
			น้อยของของของของของของของของของของใ					600000000000000000000000000000000000000	

Inspection Personnel	OGI Certification Number	
Chris Moses Jr	163753	i



WELLPAD	Madusa Wellpad								
ON-SITE CONTACT	Brandon St. Cla	Brandon St. Clair							
DATE TESTED	8/16/2017	START TIME	1410	END TIME	1530				
SKY CONDITIONS	Clear	AMBIENT TEMP	81	WIND SPEED	3mph				

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/16/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	Chris Moses
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <u>For Each</u> Attempt
1				
2				
3				
4	**************************************	·····		
5				***
6				

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	N/A
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0



AT LEAST ONE STILL IMAGE IS ATTACHED (V)	✓
ALL STILL IMAGES ARE DATED AND GIS ENABLED (~)	✓
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	√
DELAY OF REPAIR FORMS COMPLETE (or N/A)	N/A

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{t_{Leak}}{Count_{Est}} \times 100\%$

LEAKER COUNT	0
ESTIMATED COMPONENT COUNT*	788
LEAK PERCENT**	0

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

Signature: Date: 16 Avgvs+ 2017

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

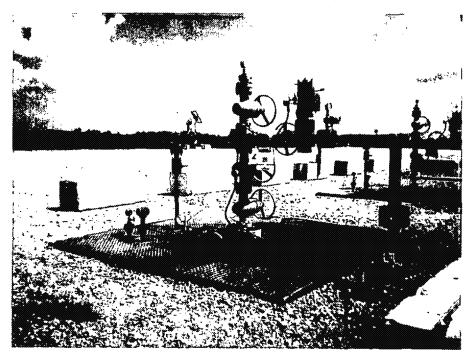
Initial Site Photo

Location: Well Head

Date & Time: 8/16/2017 2:24:32 PM

Geolocation: N 39° 58′ 19.86″, W 81° 2′ 37.26″

http://maps.google.com?z=17&t=k&q=39.9722,-81.0437



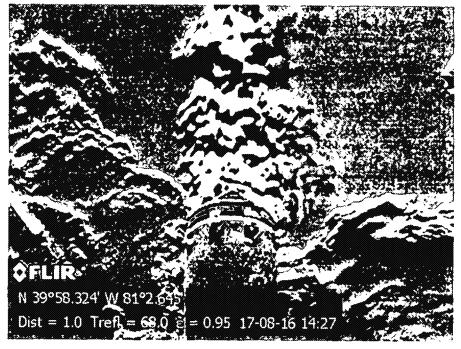
Camera Verification Photo

Location: GPU Stack

Date & Time: 8/16/2017 2:27:35 PM

Geolocation: N 39° 58' 19.45", W 81° 2' 38.70"

http://maps.google.com?z=17&t=k&q=39.9721,-81.0441





Premier Energy
Services, LLC
1 Dane St.
Clarksburg, WV 26301
304.624.0989 | Office
304.624.3106 | Fax
http://premierenergyserviceswv.com

16 August 2017

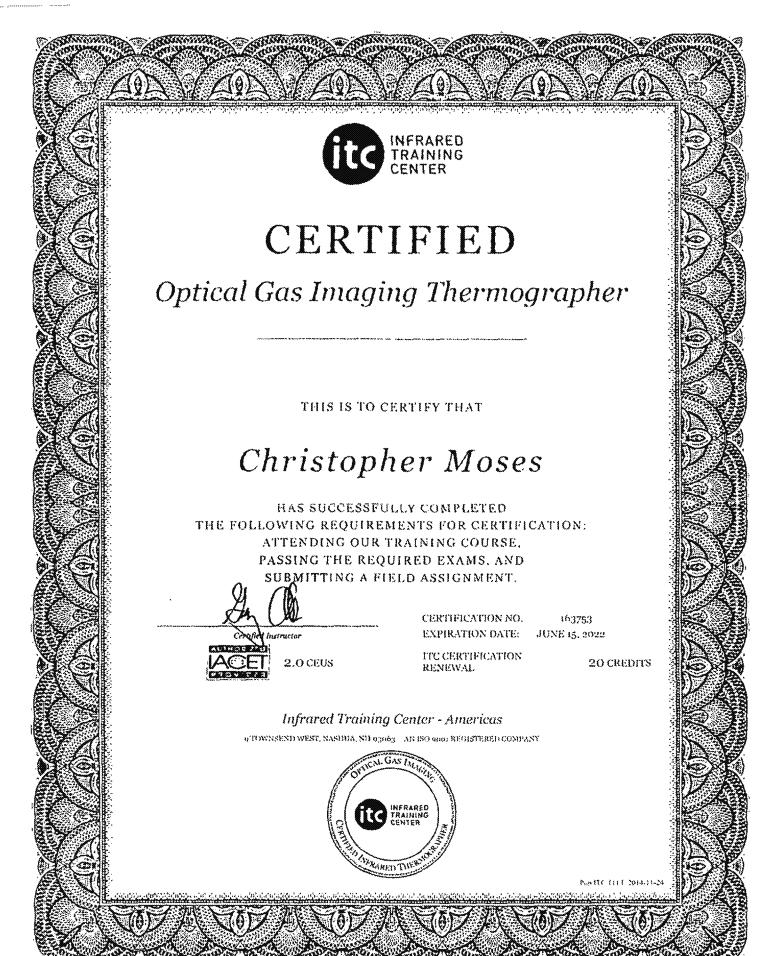
Certification

I hereby certify that the FLIR GF 320 OGI Camera with Serial Number 44401600 has been operated and maintained in accordance with the manufacturer's operation and maintenance instructions.

Chris Moses

OGI Certification 163753

Date



DPREIMER Customer: RICE AR Location: MEDVSA	Job Safety Ana ミR ら ソ	Date: 8-16-17
Work Activity Description: ADE	IB.	Truck #
	Mose	***************************************
Signature: <u>V//</u>		
Work Sequences	Hazards or Potential Accidents	Recommendations to Eliminate/Reduce Hazard
Travel To/From Location	Driving Incidents, Inclement Weather, Wildlife Encounters	SAFE DRIVENG/SEATBELTS
Work Site Assessment	Vehicle Traffic (Trucks)/ Spill Possibilities from Operational Equipment	BE ANARE OF SURROUNDINGS
Establish Muster Point, Designated Smoking Areas	Muster Established and Known (below)	MAIN GATE
Provide Work Steps Below and Perform Tailgate Meeting Topic: VEHTCLESAFOTY	Slips, Trips, and Falls caused by uneven terrain, or mud and icy areas, lines, debris, steps or containment	3 POINTS OF CONTACT
1. DRIVE TO THE LOCATION	Burns from compressor components and heaters	Gloves/FRI/PPE
WALK AROUND LOCATION AND IDENTIFY POTENTIAL RISKS	Excessive noise levels from compressors	HEARING PROTECTION
3. PERFORM HOT WORK ASSESSMENT WITH 4-GAS METER AND DOCUMENT 4. POWER ON INSPECTION	Exposure to pinch points to hands or body by valves or structures (production equipment, heavy equipment and vehicles)	GIEVES/FRIS/PPE
EQUIPMENT 5. WALK INSPECTION ROUTE AND	Potential for explosion from Leaking components	NOT WORK PERMIT
COMMENCE INSPECTION.	Gas asphyxiation	4-GAS METER
6. RECORD ALL FINDINGS AND DOUBLE CHECK INFORMATION		
Perform General Housekeeping/Cleanup Barricading	At all times	
Ensure All Gates are Closed and Locked	If encountered	
	REMEMBER: STOP WORK AUTHORITY	
Muster Points:	Additional PPE Required	,Other
Primary: MAIN GATE	Hard Hat Ear protection	WEATHER CONDITIONS: & Parkly Surry
	Safety Glasses 4-Gas Meter	TEMPERATURE: 81° F
GPS Coordinates:	Fire Resistant Clothing	
	Steel Toe Boots	Company Representative:
	High Vis Vest	SAL BY THE
		Modffed



Rice Drilling D LLC LDAR Inspection Conducted on August 24, 2017 Monster Mut Well Pad 1H, 3H, 5H



1 Dane St. Clarksburg, WV, 26301 304-624-0989 www.premierenergyservices.com



Rice Drilling D LLC

Monster Mut 1H, 3H, 5H Leaking Components Report

Inspection Conducted on 08/24/2017

Total Leaking Components	8
Total repairs not made within 30 days	0

Leak#	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Samula Daha	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
reax #	totation ocseription	METHO	equipment	Date	Deaunne	Repair Date	Description	OG! Refeat Date	With Oals
MONS-20170824-001	Dehy Level Controller Stainless Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
MONS-20170824-002	5H GPU Run 1 Burner Stainless Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
MONS-20170824-003	5H GPU Run 2 Stainless Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tigntened	8/24/2017	YES
MONS-20170824-004	5H GPU Run 2 Stainless Fitting	og!	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
MONS-20170824-005	1H GPU Run ESD Diaphragm	OGI	FLIR GF 320	8/24/2017	9/23/2017	9/1/2017	1st Replaced	9/1/2017	YES
MONS-20170824-006	1H GPU Run 1 High- Low Supply Line	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES
MONS-20170824-007	1H GPU Run 1 High- Low Switch GFI	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	· YES
MONS-20170824-008	1H GPU High- Low Box Stainless Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tightened	8/24/2017	YES

Inspection Personnel	OGI Certification Number	
Chris Moses Jr	163753	



WELLPAD	Monster Mut Wellpad					
ON-SITE CONTACT	Justin Stogner	ustin Stogner				
DATE TESTED	8/24/2017	START TIME	1330	END TIME	1530	
SKY CONDITIONS	Clear	AMBIENT TEMP	77	WIND SPEED	3	

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/24/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	Chris Moses
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

	LEAKS DETECTED (Attach additional sheets if necessary)							
Lo	ocation Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <u>For Each</u> Attempt			
1	Dehy Level Controller Stainless Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened			
2	5H GPU Run I Burner Stainless Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened			
3	5H GPU Run 2 Stainless Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened			
4	5H GPU Run 2 Stainless Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened			
5	1H GPU Run ESD Diaphragm	8/24/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Replaced			
6	1H GPU Run 1 High- Low Supply Line	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened			

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	1
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (*)	· ·
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0



AT LEAST ONE STILL IMAGE IS ATTACHED (√
ALL STILL IMAGES ARE DATED AND GIS ENABLED (1/2)	√
LEAKER STILL IMAGES ARE ATTACHED (or N/A)	√
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	¥
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* ()	~ · · · · · · · · · · · · · · · · · · ·
DELAY OF REPAIR FORMS COMPLETE (or N/A)	N/A

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{a^k \times 100\%}{Count_{Est}}$

LEAKER COUNT	8
ESTIMATED COMPONENT COUNT	849
LEAK PERCENT**	.94

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors

	~ 11 /h					
C:	. 1 \\///	D-+-	_	15	Wolamber	2017
Signature	: <u>////</u> //	Date	- A	1 /	Chrevins	

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.



	LEAKS DETECTED (Attach additional sheets if necessary)						
I OCATION DESCRIPTION				Camera Model and ID for Rescan	Corrective Action Description <u>For Each</u> Attempt		
7	IH GPU Run I High- Low Switch GFI	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	I [®] Tightened		
8	IH GPU High- Low Box Stainless Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened		

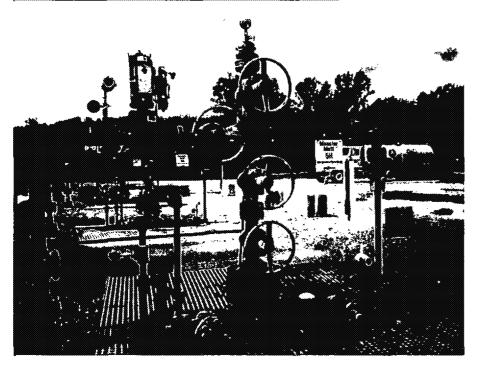
Initial Site Photo

Location: Well Head

Date & Time: 8/24/2017 1:47:18 PM

Geolocation: N 39° 51' 18.24", W 80° 53' 9.72"

http://maps.google.com?z=17&t=k&q=39.8551,-80.8860



Camera Verification Photo

Location: GPU Stack

Date & Time: 8/24/2017 1:48:18 PM

Geolocation: N 39° 51' 17.17", W 80° 53' 10.46"

http://maps.google.com?z=17&t=k&q=39.8548,-80.8862



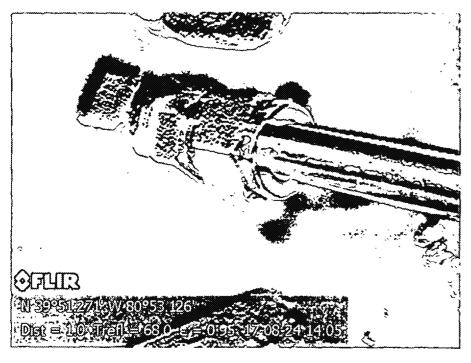
MONS-20170824-001IR Leaking

Location: Dehy Level Controller Stainless Fitting

Date & Time: 8/24/2017 2:06:01 PM

Geolocation: N 39° 51' 16.28", W 80° 53' 7.54"

http://maps.google.com?z=17&t=k&q=39.8545,-80.8854



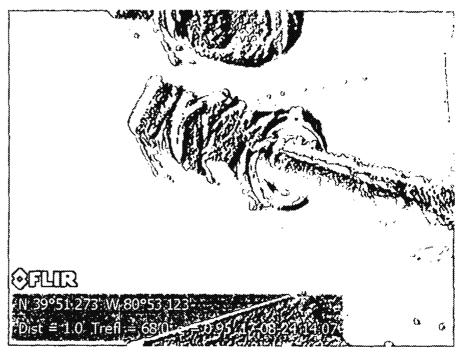
MONS-20170824-001IR Repaired

Location: Dehy Level Controller Stainless Fitting

Date & Time: 8/24/2017 2:07:26 PM

Geolocation: N 39° 51' 16.40", W 80° 53' 7.39"

http://maps.google.com?z=17&t=k&q=39.8546,-80.8854



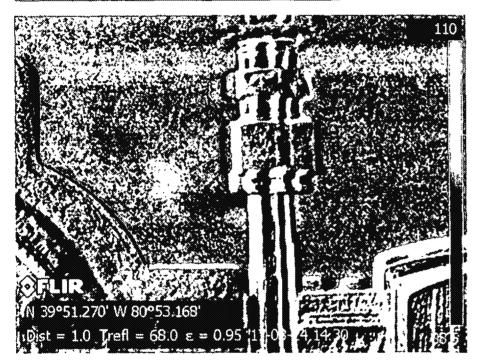
MONS-20170824-002IR Leaking

Location: 5H GPU Run 1 Burner Stainless Fitting

Date & Time: 8/24/2017 2:30:42 PM

Geolocation: N 39° 51' 16.20", W 80° 53' 10.11"

http://maps.google.com?z=17&t=k&q=39.8545,-80.8861



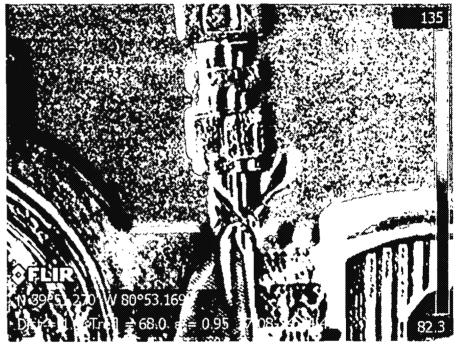
MONS-20170824-002IR Repaired

Location: 5H GPU Run 1 Burner Stainless Fitting

Date & Time: 8/24/2017 2:47:26 PM

Geolocation: N 39° 51′ 16.22″, W 80° 53′ 10.12″

http://maps.google.com?z=17&t=k&q=39.8545,-80.8861



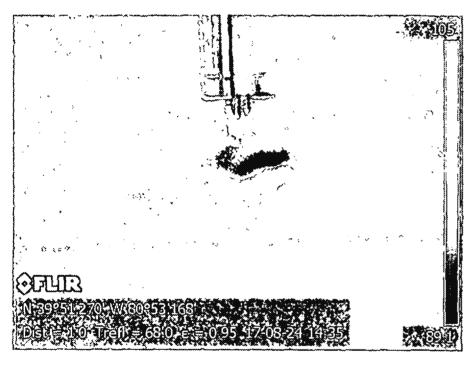
MONS-20170824-003IR Leaking

Location: 5H GPU Run 2 Stainless Fitting

Date & Time: 8/24/2017 2:35:50 PM

Geolocation: N 39° 51' 16.18", W 80° 53' 10.06"

http://maps.google.com?z=17&t=k&g=39.8545,-80.8861



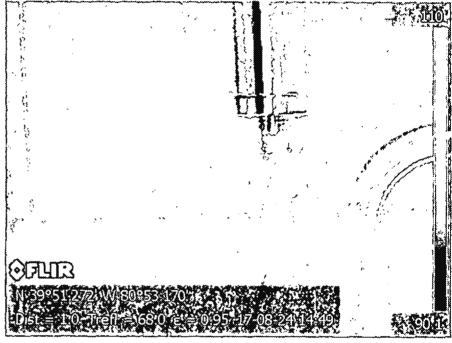
MONS-20170824-003IR Repaired

Location: 5H GPU Run 2 Stainless Fitting

Date & Time: 8/24/2017 2:49:19 PM

Geolocation: N 39° 51′ 16.33″, W 80° 53′ 10.18″

http://maps.google.com?z=17&t=k&q=39.8545,-80.8862



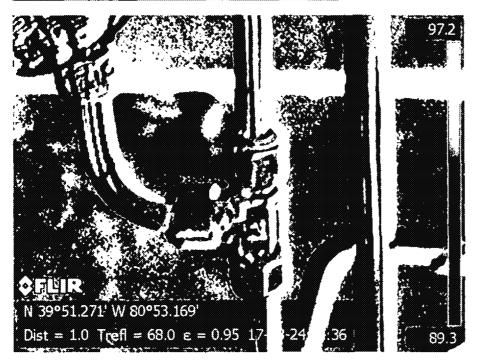
MONS-20170824-004IR Leaking

Location: 5H GPU Run 2 Stainless Fitting

Date & Time: 8/24/2017 2:37:01 PM

Geolocation: N 39° 51' 16.25", W 80° 53' 10.14"

http://maps.google.com?z=17&t=k&q=39.8545,-80.8862



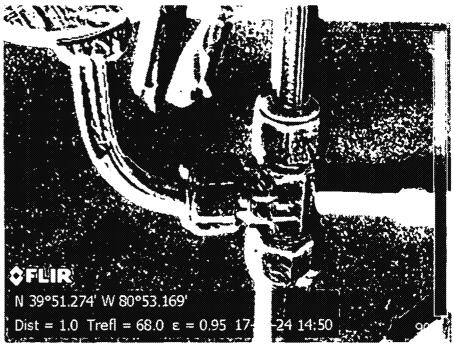
MONS-20170824-004IR Repaired

Location: 5H GPU Run 2 Stainless Fitting

Date & Time: 8/24/2017 2:50:39 PM

Geolocation: N 39° 51' 16.43", W 80° 53' 10.17"

http://maps.google.com?z=17&t=k&q=39.8546,-80.8862



MONS-20170824-005IR Leaking

Location: 1H GPU Run ESD Diaphragm

Date & Time: 8/24/2017 2:55:42 PM

Geolocation: N 39° 51' 16.42", W 80° 53' 10.58"

http://maps.google.com?z=17&t=k&q=39.8546,-80.8863



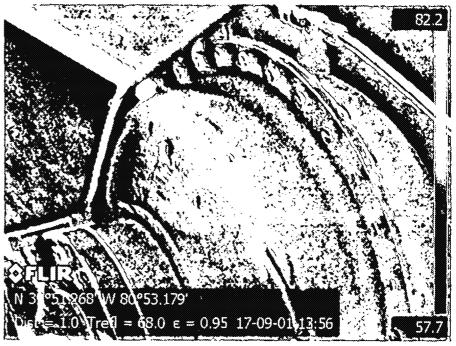
MONS-20170824-005IR Repaired

Location: 1H GPU Run ESD Diaphragm

Date & Time: 9/1/2017 1:56:05 PM

Geolocation: N 39° 51' 16.09", W 80° 53' 10.75"

http://maps.google.com?z=17&t=k&q=39.8545,-80.8863

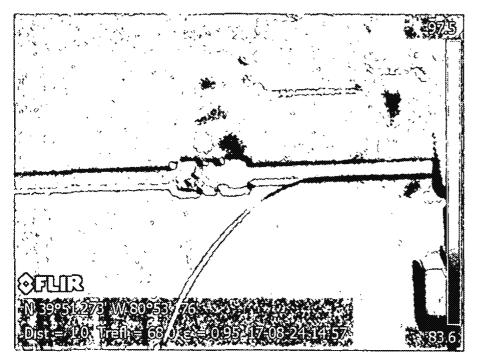


MONS-20170824-006IR Leaking

Location: 1H GPU Run 1 High- Low Supply Line

Date & Time: 8/24/2017 2:57:06 PM

Geolocation: N 39° 51′ 16.38″, W 80° 53′ 10.59″ http://maps.google.com?z=17&t=k&q=39.8546,-80.8863



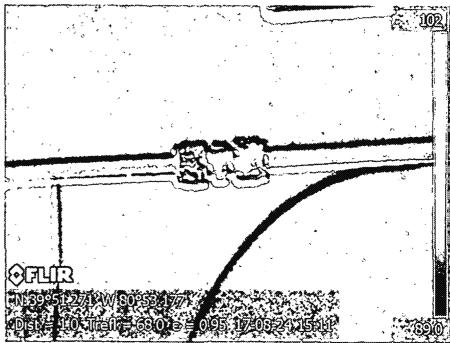
MONS-20170824-006IR Repaired

Location: 1H GPU Run 1 High- Low Supply Line

Date & Time: 8/24/2017 3:11:36 PM

Geolocation: N 39° 51' 16.27", W 80° 53' 10.64"

http://maps.google.com?z=17&t=k&g=39.8545,-80.8863



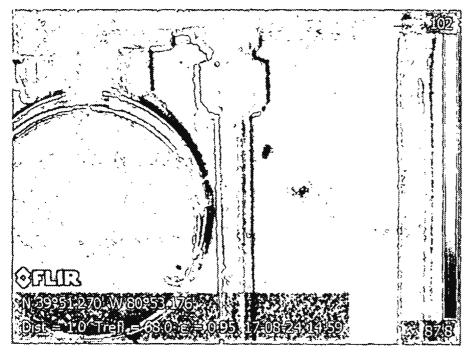
MONS-20170824-007IR Leaking

Location: IH GPU Run 1 High- Low Switch GFI

Date & Time: 8/24/2017 2:59:43 PM

Geolocation: N 39° 51' 16.21", W 80° 53' 10.59"

http://maps.google.com?z=17&t=k&q=39.8545,-80.8863

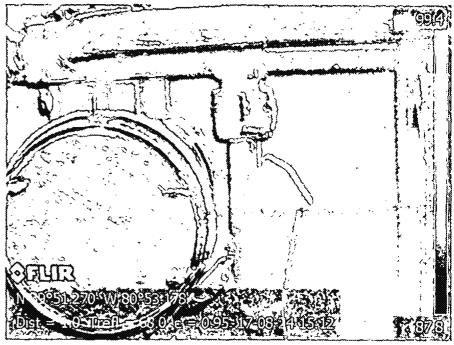


MONS-20170824-007IR Repaired

Location: 1H GPU Run 1 High- Low Switch GFI

Date & Time: 8/24/2017 3:12:31 PM

Geolocation: N 39° 51′ 16.22″, W 80° 53′ 10.66″ http://maps.google.com?z=17&t=k&q=39.8545,-80.8863

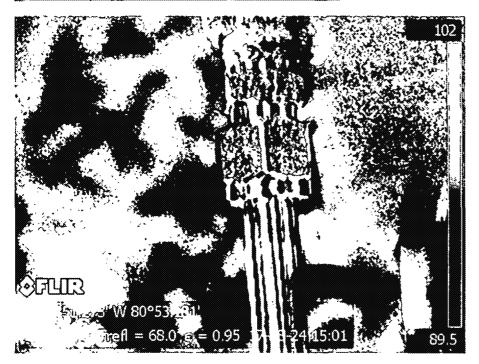


MONS-20170824-008IR Leaking

Location: IH GPU High- Low Box Stainless Fitting

Date & Time: 8/24/2017 3:01:46 PM

Geolocation: N 39° 51′ 16.36″, W 80° 53′ 10.87″ http://maps.google.com?z=17&t=k&g=39.8545,-80.8864



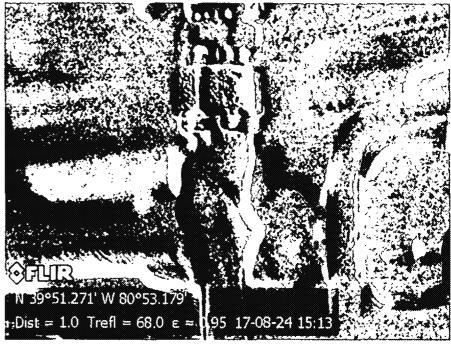
MONS-20170824-008IR Repaired

Location: 1H GPU High- Low Box Stainless Fitting

Date & Time: 8/24/2017 3:13:48 PM

Geolocation: N 39° 51' 16.27", W 80° 53' 10.75"

http://maps.google.com?z=17&t=k&q=39.8545,-80.8863





Rice Drilling D, LLC
LDAR Inspection Conducted on August 24, 2017
Spitfire Well Pad
1H, 3H



1 Dane St. Clarksburg, WV, 26301 304-624-0989 www.premierenergyservices.com



Rice Drilling D LLC

Spitfire 1H, 3H Leaking Components Report

Inspection Conducted on 08/24/2017

1	Total Leaking Components	4
	Total repairs not made within 30 days	0

Leak#	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
SPIT-20170824-001	Dehy Liquid level Controller	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Cleaned	8/24/2017	YES
SPIT-20170824-002	3H GPU Run 1 High-Low Quick Exhaust	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tighted	8/24/2017	YES
SPIT-20170824-003	1H GPU Run 1 High- Low Quick Exhaust	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tighted	8/24/2017	YES
SP1T-20170824-004	1H GPU Run 2 Piper Valve Grease Fitting	OGI	FLIR GF 320	8/24/2017	9/23/2017	8/24/2017	1st Tighted	8/24/2017	YES

Inspection Personnel	OGI Certification Number	
Chris Moses Jr	163753	



WELLPAD	Spitfire wellpad	Spitfire wellpad						
ON-SITE CONTACT	Justin Stoner	ustin Stoner						
DATE TESTED	8/24/2017	START TIME	1030	END TIME	1305			
SKY CONDITIONS	Clear	AMBIENT TEMP	77	WIND SPEED	3			

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/24/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	Chris Moses
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

	LEAKS DETECTED (Attach additional sheets if necessary)						
Lo	cation Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <u>For Each</u> Attempt		
1	Dehy Liquid level Controller	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Cleaned		
2	3H GPU Run I High- Low Quick Exhaust	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	I st Tightened		
3	IH GPU Run I High- Low Quick Exhaust	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened		
4	IH GPU Run 2 Piper Valve Grease Fitting	8/24/2017	8/24/2017	FLIR GF 320 S/N: 44401600	1 st Tightened		
5			•				
6							

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (<)	V
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	-
ALL STILL IMAGES ARE DATED AND GIS ENABLED (1/2)	
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	· ·
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	√
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	
DELAY OF REPAIR FORMS COMPLETE (or N/A)	N/A

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{t_{Leak} \times 100\%}{Count_{Est}}$$

LEAKER COUNT	4
ESTIMATED COMPONENT COUNT*	624
LEAK PERCENT**	.64

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

Signature:

Date: 24 Avgus 2017

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

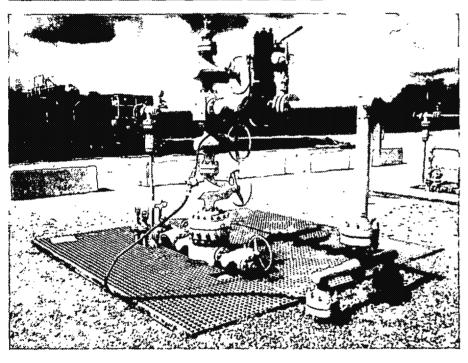
Initial Site Photo

Location: Well Head

Date & Time: 8/24/2017 11:50:15 AM

Geolocation: N 39° 51' 56.04", W 80° 52' 27.66"

http://maps.google.com?z=17&t=k&q=39.8656,-80.8744



Camera Verification Photo

Location: GPU Stack

Date & Time: 8/24/2017 11:51:05 AM

Geolocation: N 39° 51′ 56.70″, W 80° 52′ 26.59″

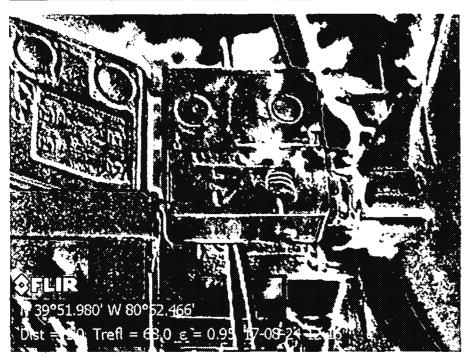
http://maps.google.com?z=17&t=k&q=39.8658,-80.8741



SPIT-20170824-001IR Leaking

Location: Dehy Liquid level Controller
Date & Time: 8/24/2017 12:16:29 PM

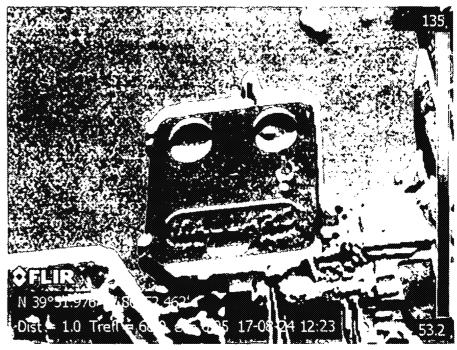
Geolocation: N 39° 51' 58.78", W 80° 52' 27.93" http://maps.google.com?z=17&t=k&q=39.8663,-80.8744



SPIT-20170824-001IR Repaired

Location: Dehy Liquid level Controller Date & Time: 8/24/2017 12:23:14 PM

Geolocation: N 39° 51' 58.54", W 80° 52' 27.69" http://maps.google.com?z=17&t=k&q=39.8663,-80.8744

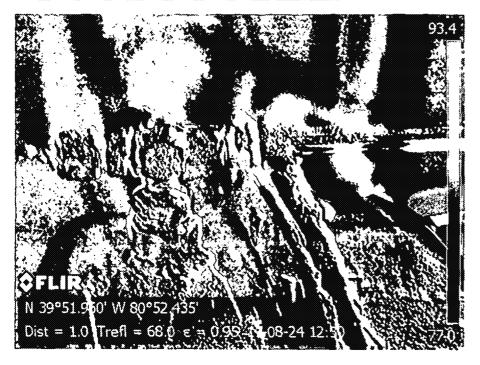


SPIT-20170824-002IR Leaking

Location: 3H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/24/2017 12:30:13 PM

Geolocation: N 39° 51' 57.58", W 80° 52' 26.08" http://maps.google.com?z=17&t=k&q=39.8660,-80.8739

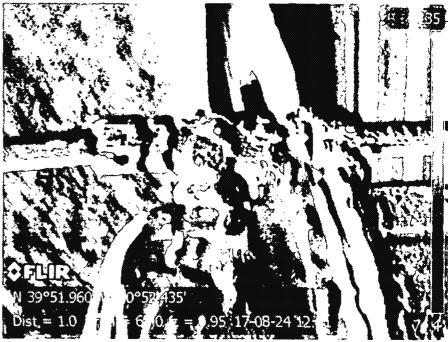


SPIT-20170824-002IR Repaired

Location: 3H GPU Run I High-Low Quick Exhaust

Date & Time: 8/24/2017 12:31:21 PM

Geolocation: N 39° 51' 57.61", W 80° 52' 26.10" http://maps.google.com?z=17&t=k&q=39.8660,-80.8739



SPIT-20170824-003IR Leaking

Location: 1H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/24/2017 12:43:36 PM

Geolocation: N 39° 51' 57.35", W 80° 52' 25.70" http://maps.google.com?z=17&t=k&q=39.8659,-80.8738

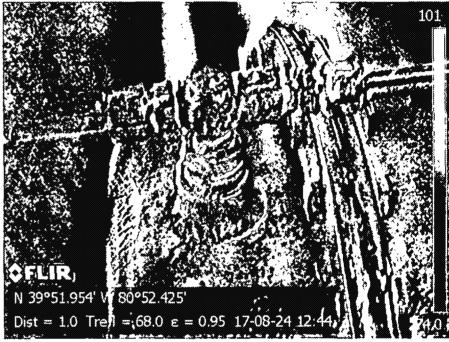


SPIT-20170824-003IR Repaired

Location: 1H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/24/2017 12:44:27 PM

Geolocation: N 39° 51' 57.26", W 80° 52' 25.52" http://maps.google.com?z=17&t=k&q=39.8659,-80.8738

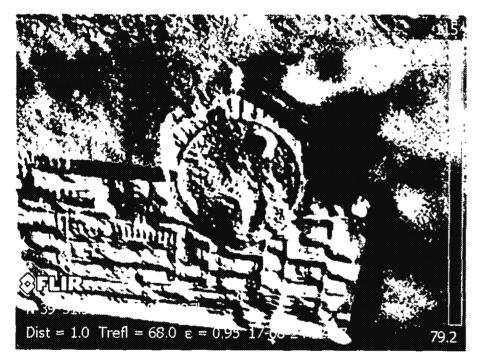


SPIT-20170824-004IR Leaking

Location: 1H GPU Run 2 Piper Valve Grease Fitting

Date & Time: 8/24/2017 12:47:38 PM

Geolocation: N 39° 51′ 57.19″, W 80° 52′ 25.61″ http://maps.google.com?z=17&t=k&q=39.8659,-80.8738

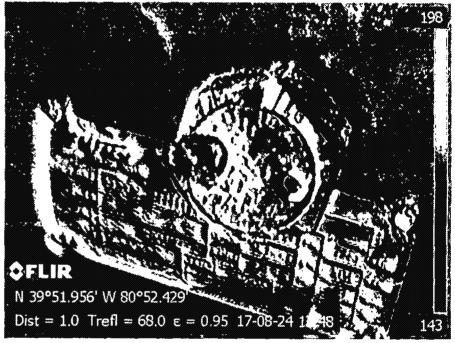


SPIT-20170824-004IR Repaired

Location: 1H GPU Run 2 Piper Valve Grease Fitting

Date & Time: 8/24/2017 12:48:51 PM

Geolocation: N 39° 51' 57.34", W 80° 52' 25.75" http://maps.google.com?z=17&t=k&q=39.8659,-80.8738





Rice Drilling D LLC LDAR Inspection Conducted on August 16, 2017 Taco Cat Well Pad 1H, 3H, 5H



l Dane St. Clarksburg, WV, 26301 304-624-0989 www.premierenergyservices.com



Rice Drilling D LLC

Taco Cat 1H, 3H, 5H Leaking Components Report

Inspection Conducted on 08/16/2017

Total Leaking Components	11
Total repairs not made within 30 days	Ó

Leak #	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
TACO-20170816-001	Fuel Skid Dump Control for Concentrate Separator	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1et Seesand	8/16/2017	ure
TACO-20170816-002	1H GPU Run 2 Piper Valve Grease Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Retaped 1st Greased	8/16/2017	YES
TACO-20170816-003	111 GPU Run 1 Main Burner Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Tightened	8/16/2017	YES
TACO-20170816-004	3H GPU Run 2 Fuel Gas Susinless Fitting	0GI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Tightened	8/16/2017	YES
TACO-20170816-005	3H GPU Run 2 Fuel Gas Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Tightened	8/16/2017	YES
TACO-20170816-006	3H GPU Run 1 Fuel Gas Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	6/16/2017	1st Tightened	8/16/2017	YES
TACO-20170816-007	3H GPU Run 1 Fuel Gas Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Tightened	8/16/2017	YES
TACO-20170816-008	5H GPU Rnn 2 High Low Quick Exhaust	QGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	Ist Greased	8/17/2017	YES
TACO-20170816-009	5H GPU Run 2 Fuel Gas Stainless Fitting	OGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Tightened	8/16/2017	YES
TACO-20170816-010	5H GPU Run 2 Fuel Gas Stainless Fitting	QGI	FLIR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Tightened	8/16/2017	YES
TACO-20170816-011	5H GPU Run 1 High Low Quick Exhaust	OGI	FUR GF 320	8/16/2017	9/15/2017	8/16/2017	1st Tightened 2nd Replaced	8/16/2017	YES

Inspection Personnel	OG! Certification Number	
Chris Mases Jr	163753	



WELLPAD Taco Cat Wellpad								
ON-SITE CONTACT	Brandon St. Clai	randon St. Clair						
DATE TESTED	8/16/2017	START TIME	0815	END TIME	1215			
SKY CONDITIONS	Clear	AMBIENT TEMP	81	WIND SPEED	3mph			

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/16/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	Chris Moses
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

***********	LEAKS DETECTED (Attach additional sheets if necessary)						
Location Description		cation Description Date Date Detected Repaired		Camera Model and ID for Rescan	Corrective Action Description <u>For Eacl</u> Attempt		
1	Fuel Skid Dump Control for Concentrate Separator	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	I st Retaped		
2	1H GPU Run 2 Piper Valve Grease Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Greased		
3	IH GPU Run I Main Burner Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	I st Tightened		
4	3H GPU Run 2 Fuel Gas Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened		
5	3H GPU Run 2 Fuel Gas Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	l st Tightened		
6	3H GPU Run I Fuel Gas Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened		

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	l l
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (<)	*
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0



	LEAKS DETECTED (Attach additional sheets if necessary)							
Lo	cation Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description For Each Attempt			
	BH GPU Run Fuel Gas Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	l ^a Tightened			
	SH GPU Run 2High Low Quick Exhaust	8/16/2017	8/17/2017	FLIR GF 320 S/N: 44401600	i st Greased			
	5H GPU Run 2 Fuel Gas Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1 st Tightened			
10	5H GPU Run 2 Fuel Gas Stainless Fitting	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	is Tightened			
11	5H GPU Run I High Low Quick Exhaust	8/16/2017	8/16/2017	FLIR GF 320 S/N: 44401600	1st Tightened 2nd Replaced			



AT LEAST ONE STILL IMAGE IS ATTACHED (~)	√
ALL STILL IMAGES ARE DATED AND GIS ENABLED (~)	√
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	√
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	√
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	√
DELAY OF REPAIR FORMS COMPLETE (or N/A)	N/A

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{t_{Leak}}{Country}$

LEAKER COUNT	11
ESTIMATED COMPONENT COUNT*	849
LEAK PERCENT**	1.29 %

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

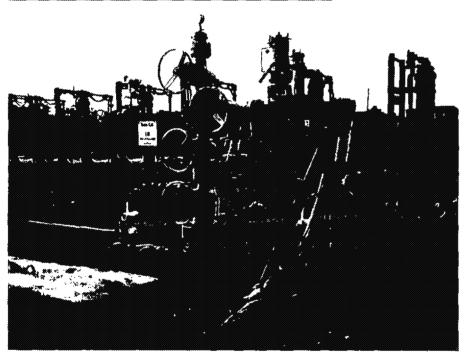
^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

Initial Site Photo

Location: Well Head

Date & Time: 8/16/2017 8:40:38 AM Geolocation: N 39° 57' 5.04", W 81° 2' 46.32"

http://maps.google.com?z=17&t=k&q=39.9514,-81.0462



Camera Verification Photo

Location: GPU Stack

Date & Time: 8/16/2017 8:41:04 AM Geolocation: N 39° 57' 5.06", W 81° 2' 46.35"

http://maps.google.com?z=17&t=k&q=39.9514,-81.0462



TACO-20160816-001IR Leaking

Location: Fuel Skid Dump Control for Concentrate Separator

Date & Time: 8/16/2017 8:55:01 AM Geolocation: N 39° 57' 4.83", W 81° 2' 46.64"

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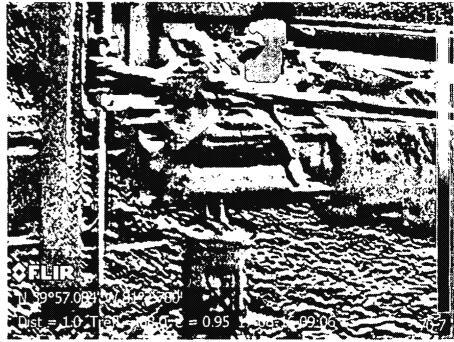


TACO-20160816-001IR Repaired

Location: Fuel Skid Dump Control for Concentrate Separator

Date & Time: 8/16/2017 9:06:29 AM Geolocation: N 39° 57' 5.01", W 81° 2' 46.79"

http://maps.google.com?z=17&t=k&q=39.9514,-81.0463



TACO-20160816-002IR Leaking

Location: 1H GPU Run 2 Piper Valve Grease Fitting

Date & Time: 8/16/2017 9:11:07 AM Geolocation: N 39° 57' 4.52", W 81° 2' 46.73"

http://maps.google.com?z=17&t=k&q=39.9513,-81.0463

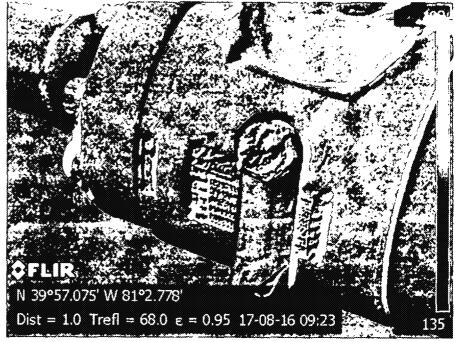


TACO-20160816-002IR Repaired

Location: 1H GPU Run 2 Piper Valve Grease Fitting

Date & Time: 8/16/2017 9:23:24 AM Geolocation: N 39° 57' 4.50", W 81° 2' 46.69"

http://maps.google.com?z=17&t=k&q=39.9513,-81.0463

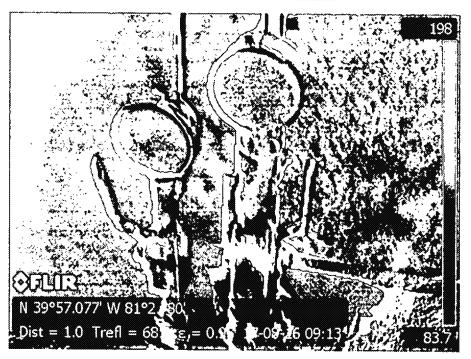


TACO-20160816-003IR Leaking

Location: 1H GPU Run 1 Main Burner Stainless Fitting

Date & Time: 8/16/2017 9:13:51 AM Geolocation: N 39° 57' 4.61", W 81° 2' 46.78"

http://maps.google.com?z=17&t=k&q=39.9513,-81.0463

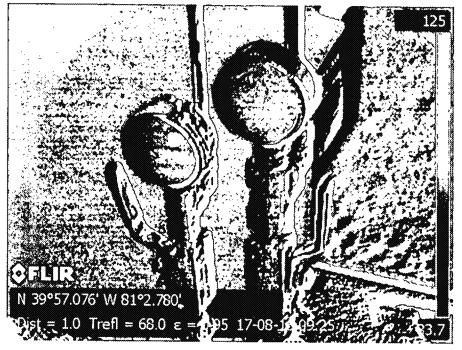


TACO-20160816-003IR Repaired

Location: 1H GPU Run 1 Main Burner Stainless Fitting

Date & Time: 8/16/2017 9:25:58 AM Geolocation: N 39° 57' 4.55", W 81° 2' 46.78"

http://maps.google.com?z=17&t=k&q=39.9513,-81.0463

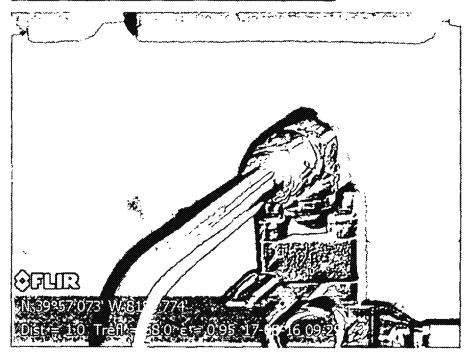


TACO-20160816-004IR Leaking

Location: 3H GPU Run 2 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 9:29:22 AM Geolocation: N 39° 57' 4.40", W 81° 2' 46.45"

http://maps.google.com?z=17&t=k&q=39.9512,-81.0462

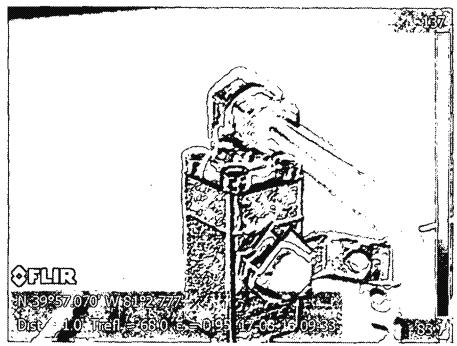


TACO-20160816-004IR Repaired

Location: 3H GPU Run 2 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 9:33:19 AM Geolocation: N 39° 57' 4.19", W 81° 2' 46.63"

http://maps.google.com?z=17&t=k&g=39.9512,-81.0463

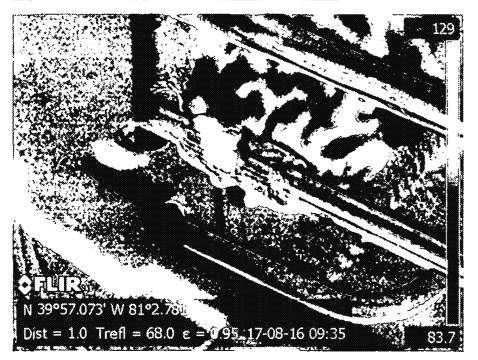


TACO-20160816-005IR Leaking

Location: 3H GPU Run 2 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 9:35:21 AM Geolocation: N 39° 57' 4.39", W 81° 2' 46.84"

http://maps.google.com?z=17&t=k&q=39.9512,-81.0463



TACO-20160816-005IR Repaired

Location: 3H GPU Run 2 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 9:42:29 AM Geolocation: N 39° 57' 4.35", W 81° 2' 46.47"

http://maps.google.com?z=17&t=k&g=39.9512,-81.0462

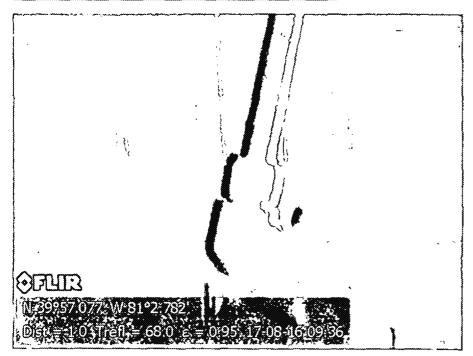


TACO-20160816-006IR Leaking

Location: 3H GPU Run 1 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 9:36:43 AM Geolocation: N 39° 57' 4.59", W 81° 2' 46.90"

http://maps.google.com?z=17&t=k&g=39.9513,-81.0464

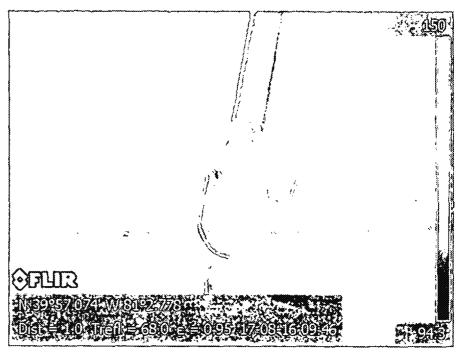


TACO-20160816-006IR Repaired

Location: 3H GPU Run 1 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 9:46:56 AM Geolocation: N 39° 57' 4.45", W 81° 2' 46.68"

http://maps.google.com?z=17&t=k&q=39.9512,-81.0463

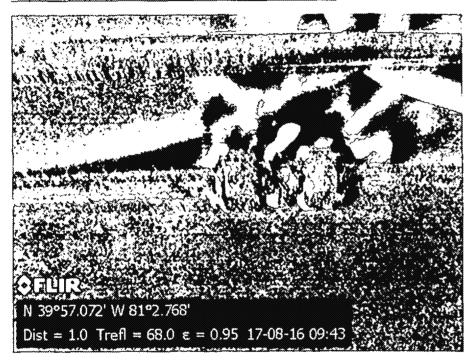


TACO-20160816-007IR Leaking

Location: 3H GPU Run 1 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 9:43:39 AM Geolocation: N 39° 57' 4.30", W 81° 2' 46.08"

http://maps.google.com?z=17&t=k&q=39.9512,-81.0461

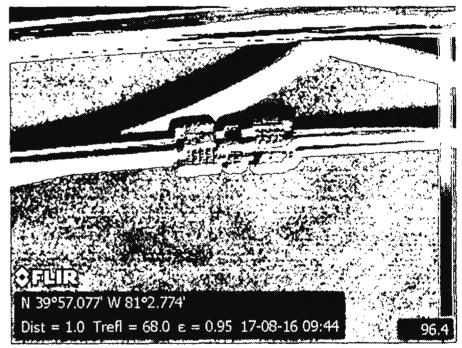


TACO-20160816-007IR Repaired

Location: 3H GPU Run 1 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 9:44:51 AM Geolocation: N 39° 57' 4.60", W 81° 2' 46.42"

http://maps.google.com?z=17&t=k&q=39.9513,-81.0462

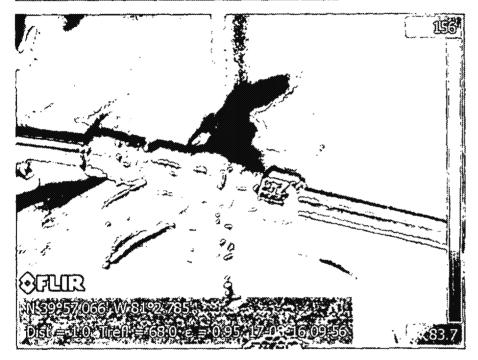


TACO-20160816-008IR Leaking

Location: 5H GPU Run 2 High Low Quick Exhaust

Date & Time: 8/16/2017 9:56:38 AM Geolocation: N 39° 57' 3.95", W 81° 2' 47.09"

http://maps.google.com?z=17&t=k&q=39.9511,-81.0464

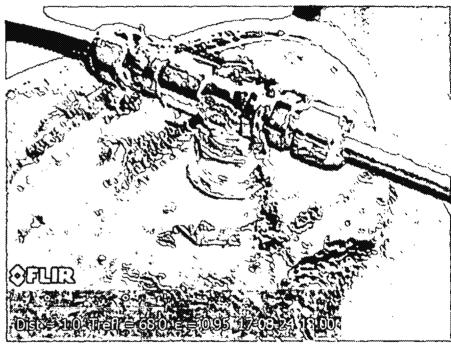


TACO-20160816-008IR Repaired

Location: 5H GPU Run 2 High Low Quick Exhaust

Date & Time: 8/24/2017 6:00:35 PM Geolocation: N 39° 57' 3.95", W 81° 2' 47.09"

http://maps.google.com?z=17&t=k&q=39.9511,-81.0464



TACO-20160816-009IR Leaking

Location: 5H GPU Run 2 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 10:02:07 AM Geolocation: N 39° 57' 4.13", W 81° 2' 46.43"

http://maps.google.com?z=17&t=k&q=39.9511,-81.0462

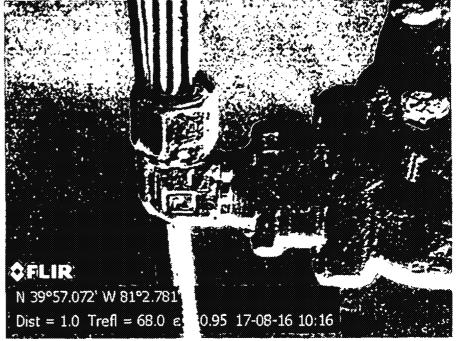


TACO-20160816-009IR Repaired

Location: 5H GPU Run 2 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 10:16:45 AM Geolocation: N 39° 57' 4.33", W 81° 2' 46.89"

http://maps.google.com?z=17&t=k&q=39.9512,-81.0464

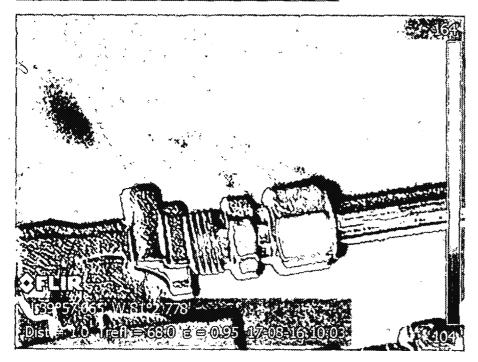


TACO-20160816-010IR Leaking

Location: 5H GPU Run 2 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 10:03:05 AM Geolocation: N 39° 57' 3.89", W 81° 2' 46.69"

http://maps.google.com?z=17&t=k&q=39.9511,-81.0463

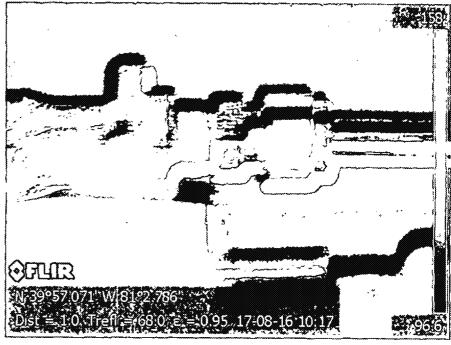


TACO-20160816-010IR Repaired

Location: 5H GPU Run 2 Fuel Gas Stainless Fitting

Date & Time: 8/16/2017 10:17:20 AM Geolocation: N 39° 57' 4.23", W 81° 2' 47.14"

http://maps.google.com?z=17&t=k&q=39.9512,-81.0464

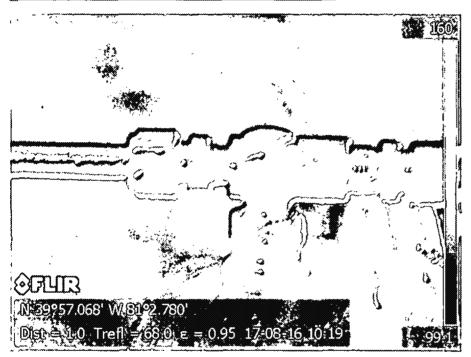


TACO-20160816-011IR Leaking

Location: 5H GPU Run 1 High Low Quick Exhaust

Date & Time: 8/16/2017 10:19:27 AM Geolocation: N 39° 57' 4.09", W 81° 2' 46.80"

http://maps.google.com?z=17&t=k&q=39.9511,-81.0463

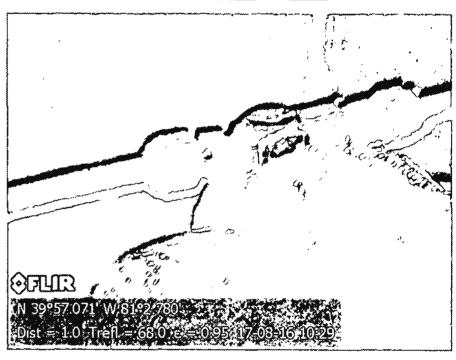


TACO-20160816-011IR Repaired

Location: 5H GPU Run 1 High Low Quick Exhaust

Date & Time: 8/16/2017 10:29:14 AM Geolocation: N 39° 57' 4.23", W 81° 2' 46.78"

http://maps.google.com?z=17&t=k&q=39.9512,-81.0463





Rice Drilling D LLC LDAR Inspection Conducted on August 23, 2017 Thrasher Well Pad 1H, 3H, 5H



l Dane St. Clarksburg, WV, 26301 304-624-0989 www.premierenergyservices.com



Rice Drilling D LLC

Thrasher 1H, 3H, 5H Leaking Components Report

Inspection Conducted on 08/23/2017

Total Leaking Components	3
Total repairs not made within 30 days	0

		Testing	Yesting		Final Repair		Carrie d'un Artinu		
Leak#	Location Description	Method	Testing Equipment	Inspection Date	Piliai Repair Déadline	Renair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
reak #	forgon nescription		rdobucut		ocaomic	Repair Date	Description	Cos verest nate	ANGE COST
THRA-20170823-001	SH GPU Run 1 High- Low Quick Exhaust	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Tightened	8/23/2017	YES
THRA-20170823-002	1H GPU Run 2 High- Low Quick Exhaust	OG)	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Replaced	8/23/2017	YES
THRA-20170823-003	Dehy Supply Gas Stainless Fitting	OGI	FLIR GF 320	8/23/2017	9/22/2017	8/23/2017	1st Tightened	8/23/2017	YES

inspection Personnel	OGI Certification Number
Chris Mases Ir	163753



WELLPAD	Thrasher wellpa	hrasher wellpad							
ON-SITE CONTACT	Jed Marshall	d Marshall							
DATE TESTED	8/23/2017	START TIME	1315	END TIME	1515				
SKY CONDITIONS	Cloudy	AMBIENT TEMP	74	WIND SPEED	7 mph				

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/23/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	Chris Moses
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

	LEAKS DETECTED (Attach additional sheets if necessary)							
Lc	ocation Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description For Each Attempt			
1	5H GPU Run 1 High- Low Quick Exhaust	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	1st Tightened			
2	IH GPU Run 2 High- Low Quick Exhaust	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	1 st Replaced			
3	Dehy Supply Gas Stainless Fitting	8/23/2017	8/23/2017	FLIR GF 320 S/N: 44401600	1st Tightened			
4								
5								
6								

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	√
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0



AT LEAST ONE STILL IMAGE IS ATTACHED (1)	<u> </u>
ALL STILL IMAGES ARE DATED AND GIS ENABLED (~)	-
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	7
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	<u> </u>
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (*)	
DELAY OF REPAIR FORMS COMPLETE (or N/A)	N/A

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

$$Leak\% = \frac{Leak \times 100\%}{Count_{Est}}$$

LEAKER COUNT	3
ESTIMATED COMPONENT COUNT*	1095
LEAK PERCENT**	.27

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

Signature: Date: 23 AVLOT 217

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

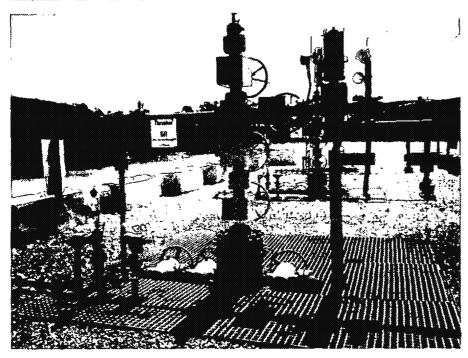
Initial Site Photo

Location: Well Head

Date & Time: 8/23/2017 1:52:33 PM

Geolocation: N 40° 0' 24.84", W 81° 0' 11.10"

http://maps.google.com?z=17&t=k&q=40.0069,-81.0031



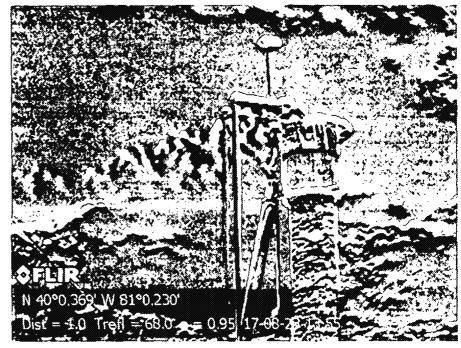
Camera Verification Photo

Location: Dehy Stack

Date & Time: 8/23/2017 1:55:08 PM

Geolocation: N 40° 0' 22.16", W 81° 0' 13.81"

http://maps.google.com?z=17&t=k&q=40.0062,-81.0038



THRA-20170823-001IR Leaking

Location: 5H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/23/2017 1:59:17 PM Geolocation: N 40° 0' 24.14", W 81° 0' 12.37"

http://maps.google.com?z=17&t=k&q=40.0067,-81.0034



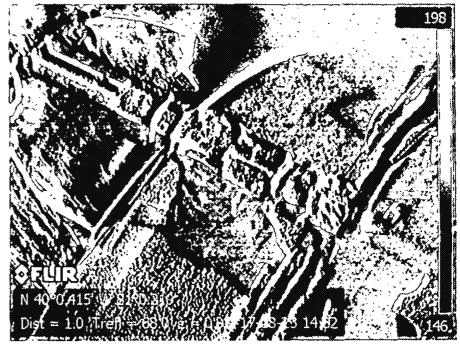
THRA-20170823-001IR Repaired

Location: 5H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/23/2017 2:32:33 PM

Geolocation: N 40° 0' 24.90", W 81° 0' 12.59"

http://maps.google.com?z=17&t=k&q=40.0069,-81.0035



THRA-20170823-002IR Leaking

Location: 1H GPU Run 2 High- Low Quick Exhaust

Date & Time: 8/23/2017 2:19:33 PM Geolocation: N 40° 0' 24.50°, W 81° 0' 12.79°

http://maps.google.com?z=17&t=k&q=40.0068,-81.0036

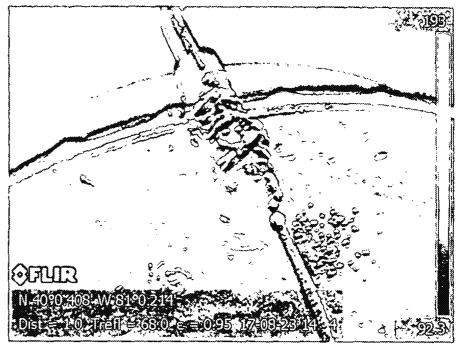


THRA-20170823-002IR Repaired

Location: 1H GPU Run 2 High- Low Quick Exhaust

Date & Time: 8/23/2017 2:34:50 PM Geolocation: N 40° 0' 24.46", W 81° 0' 12.82"

http://maps.google.com?z=17&t=k&g=40.0068,-81.0036

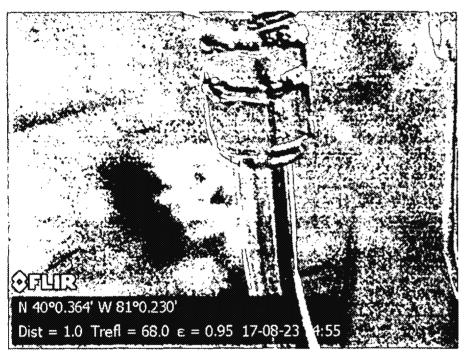


THRA-20170823-003IR Leaking

Location: Dehy Supply Gas Stainless Fitting

Date & Time: 8/23/2017 2:55:31 PM Geolocation: N 40° 0' 21.86", W 81° 0' 13.80"

http://maps.google.com?z=17&t=k&q=40.0061,-81.0038

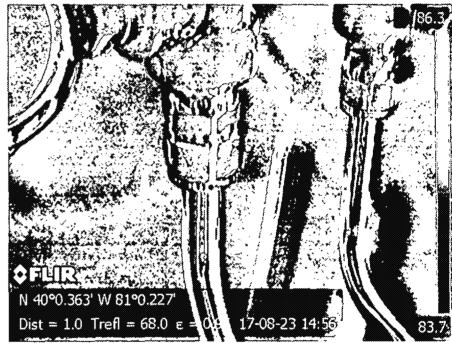


THRA-20170823-003IR Repaired

Location: Dehy Supply Gas Stainless Fitting

Date & Time: 8/23/2017 2:56:40 PM Geolocation: N 40° 0' 21.76", W 81° 0' 13.62"

http://maps.google.com?z=17&t=k&q=40.0060,-81.0038





Rice Drilling D, LLC LDAR Inspection Conducted on August 22, 2017 Thunderstruck Well Pad 2H, 4H, 6H, 8H, 10H



1 Dane St. Clarksburg, WV, 26301 304-624-0989 www.premierenergyservices.com



Rice Drilling D LLC

Thunderstruck 2H, 4H, 6H, 8H, 10H Leaking Components Report

Inspection Conducted on 08/22/2017

1	Total Leaking Components	6
	Total repairs not made within 30 days	0

		Testing	Testing	Inspection	Final Repair		Corrective Action		Repair confirmed
Leak#	Location Description	Method	Equipment	Date	Deadline	Repair Date	Description	OGI Retest Date	with OGI?
THUN-20170822-001	6H GPU Run 2 Level Controller Pilot	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1 st Replaced	8/22/2017	YES
THUN-20170822-002	4H GPU Run 1 Pilot	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1 st Tightened	8/22/2017	YES
THUN-20170822-003	4H GPU Run 2 Solenoid Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	I st Tightened	8/22/2017	YES
THUN-20170822-004	8H GPU Run I High- Low Quick Exhaust	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	l st Replaced	8/22/2017	YES
THUN-20170822-005	2HA GPU Run 1 Stainless Fitting	OGI	FLIR GF 320	8/22/2017	8/21/2017	8/22/2017	I [®] Tightened	8/22/2017	YES
THUN-20170822-006	10HA GPU Run 1 Solenoid Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	l st Tightened	8/22/2017	YES

Inspection Personnel	OGI Certification Number
Chris Moses Jr	163753



WELLPAD	Thunderstruck	hunderstruck wellpad								
ON-SITE CONTACT	Jed Marshall	ed Marshall								
DATE TESTED	8/22-23/2017	START TIME	1350 1515	END TIME	1530 1600					
SKY CONDITIONS	Cloudy	AMBIENT TEMP	84	WIND SPEED	10					

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/22/2017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	Chris Moses
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

	LEAKS DETECTED (Attach additional sheets if necessary)							
Location Description		Date Date Date Detected Repaired		Camera Model and ID for Rescan	Corrective Action Description <u>For Each</u> Attempt			
1	6H GPU Run 2 Level Controller Pilot	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	I st Replaced			
2	4H GPU Run 1 Pilot	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	Is Tightened			
3	4H GPU Run 2 Solenoid Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened			
4	8H GPU Run 1 High- Low Quick Exhaust	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	I st Replaced			
5	2HA GPU Run I Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	I st Tightened			
6	10HA GPU Run 1 Solenoid Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	I* Tightened			

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (V)	V
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0



AT LEAST ONE STILL IMAGE IS ATTACHED (<)	√
ALL STILL IMAGES ARE DATED AND GIS ENABLED (<)	√
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	√
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	√
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	→
DELAY OF REPAIR FORMS COMPLETE (or N/A)	N/A

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

 $\frac{\textit{ADDITIONAL OHIO CALCULATION:}}{\textit{Leak}\%} = \frac{nt_{\textit{Leak}}}{\textit{Count}_{\textit{Est}}} 100\%$

LEAKER COUNT	6
ESTIMATED COMPONENT COUNT*	1826
LEAK PERCENT**	.32

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

_Date: 23 August 2017

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

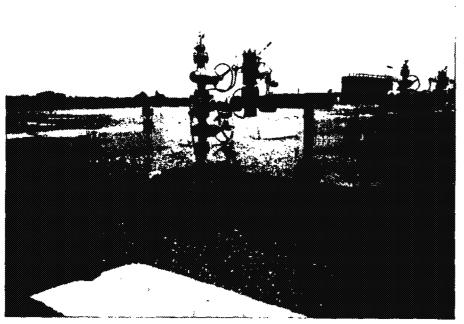
Initial Site Photo

Location: Well Head

Date & Time: 8/22/2017 2:26:45 PM

Geolocation: N 39° 58' 35.88", W 81° 1' 21.30"

http://maps.google.com?z=17&t=k&q=39.9766,-81.0226



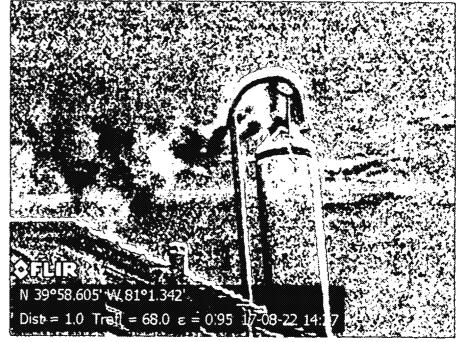
Camera Verification Photo

Location: GPU Stack

Date & Time: 8/22/2017 2:27:47 PM

Geolocation: N 39° 58' 36,30", W 81° 1' 20.51"

http://maps.google.com?z=17&t=k&q=39.9768,-81.0224

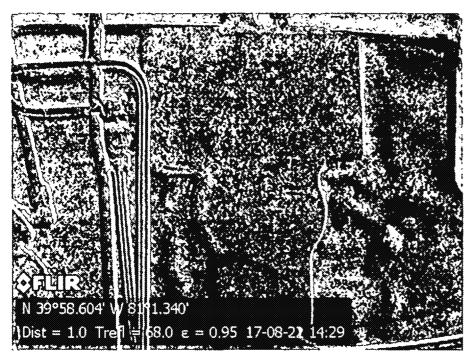


THUN-20170822-001IR Leaking

Location: 6H GPU Run 2 Level Controller Pilot

Date & Time: 8/22/2017 2:29:49 PM

Geolocation: N 39° 58' 36.27", W 81° 1' 20.38" http://maps.google.com?z=17&t=k&q=39.9767,-81.0223

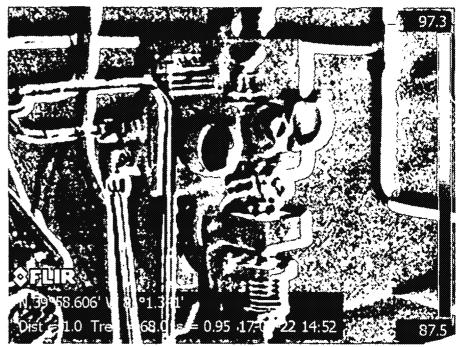


THUN-20170822-001IR Repaired

Location: 6H GPU Run 2 Level Controller Pilot

Date & Time: 8/22/2017 2:52:59 PM

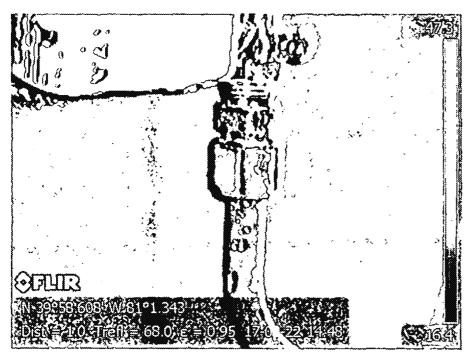
Geolocation: N 39° 58′ 36.36″, W 81° 1′ 20.44″ http://maps.google.com?z=17&t=k&q=39.9768,-81.0223



THUN-20170822-002IR Leaking

Location: 4H GPU Run 1 Pilot Date & Time: 8/22/2017 2:48:53 PM

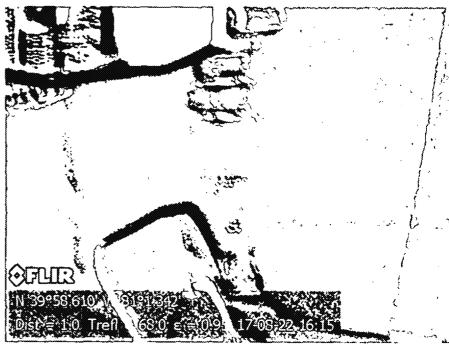
Geolocation: N 39° 58' 36.47", W 81° 1' 20.59" http://maps.google.com?z=17&t=k&q=39.9768,-81.0224



THUN-20170822-002IR Repaired

Location: 4H GPU Run 1 Pilot Date & Time: 8/22/2017 4:15:20 PM

Geolocation: N 39° 58' 36.58", W 81° 1' 20.50" http://maps.google.com?z=17&t=k&q=39.9768,-81.0224

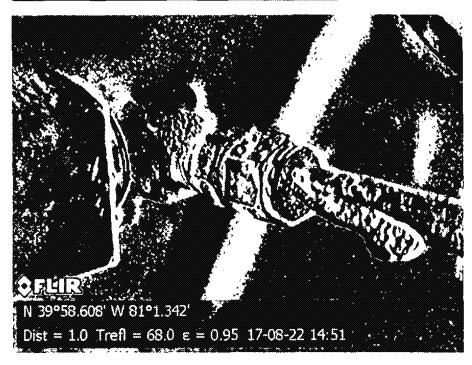


THUN-20170822-003IR Leaking

Location: 4H GPU Run 2 Solenoid Stainless Fitting

Date & Time: 8/22/2017 2:51:26 PM

Geolocation: N 39° 58' 36.46", W 81° 1' 20.51" http://maps.google.com?z=17&t=k&q=39.9768,-81.0224



THUN-20170822-003IR Repaired

Location: 4H GPU Run 2 Solenoid Stainless Fitting

Date & Time: 8/22/2017 4:18:54 PM

Geolocation: N 39° 58′ 36.92″, W 81° 1′ 20.17″ http://maps.google.com?z=17&t=k&q=39.9769,-81.0223

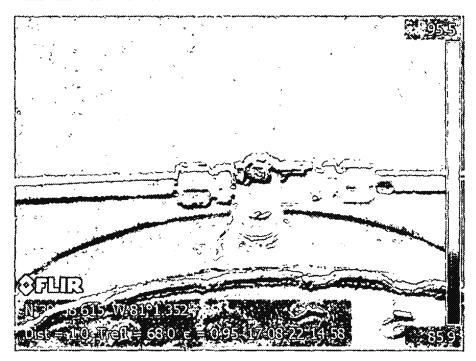


THUN-20170822-004IR Leaking

Location: 8H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/22/2017 2:58:09 PM

Geolocation: N 39° 58' 36.88", W 81° 1' 21.13" http://maps.google.com?z=17&t=k&q=39.9769,-81.0225

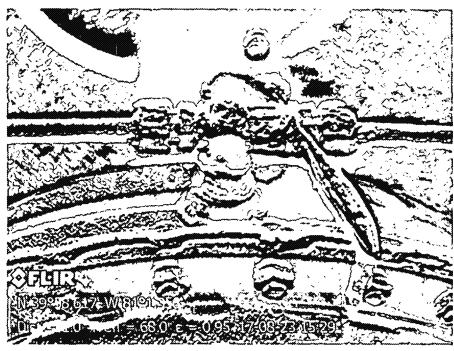


THUN-20170822-004IR Repaired

Location: 8H GPU Run 1 High- Low Quick Exhaust

Date & Time: 8/23/2017 3:29:20 PM

Geolocation: N 39° 58' 37.00", W 81° 1' 21.38" http://maps.google.com?z=17&t=k&q=39.9769,-81.0226

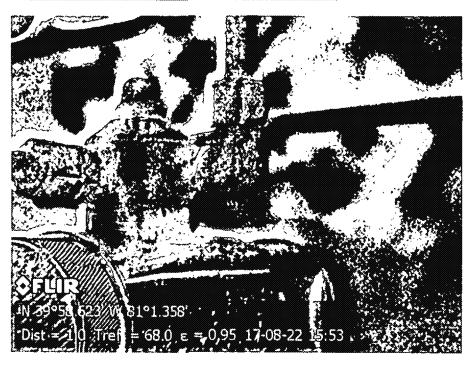


THUN-20170822-005IR Leaking

Location: 2HA GPU Run 1 Stainless Fitting

Date & Time: 8/22/2017 3:53:48 PM

Geolocation: N 39° 58' 37.42", W 81° 1' 21.45" http://maps.google.com?z=17&t=k&q=39.9771,-81.0226

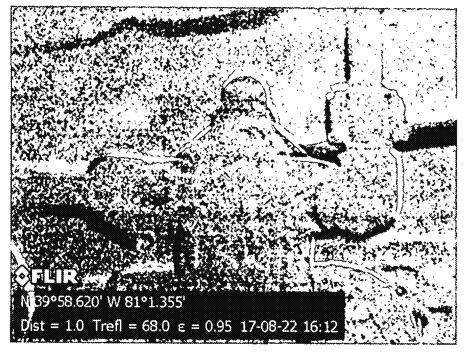


THUN-20170822-005IR Repaired

Location: 2HA GPU Run 1 Stainless Fitting

Date & Time: 8/22/2017 4:12:13 PM

Geolocation: N 39° 58′ 37.19″, W 81° 1′ 21.29″ http://maps.google.com?z=17&t=k&q=39.9770,-81.0226



THUN-20170822-006IR Leaking

Location: 10HA GPU Run 1 Solenoid Stainless Fitting

Date & Time: 8/22/2017 4:04:35 PM

Geolocation: N 39° 58' 37.69", W 81° 1' 21.51" http://maps.google.com?z=17&t=k&q=39.9771,-81.0226

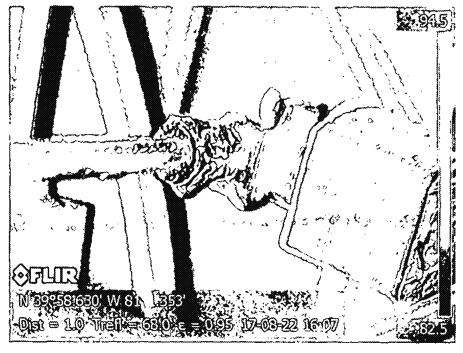


THUN-20170822-006IR Repaired

Location: 10HA GPU Run 1 Solenoid Stainless Fitting

Date & Time: 8/22/2017 4:07:12 PM

Geolocation: N 39° 58' 37.79", W 81° 1' 21.19" http://maps.google.com?z=17&t=k&q=39.9772,-81.0226





Rice Drilling D LLC LDAR Inspection Conducted on August 22, 2017 Tuna Nut Well Pad 1H, 3H, 5H, 7H



l Dane St. Clarksburg, WV, 26301 304-624-0989 www.premierenergyservices.com



Rice Drilling D LLC

Tuna Nut 1H, 3H, 5H, 7H Leaking Components Report

Inspection Conducted on 08/22/2017

-	Total Leaking Components	13
	Total repairs not made within 30 days	0

Leak∦	Location Description	Testing Method	Testing Equipment	Inspection Date	Final Repair Deadline	Repair Date	Corrective Action Description	OGI Retest Date	Repair confirmed with OGI?
TUNA-20170822-001	7H GPU Run 1 Supply to High- Low	_OGI _	FLIR GF 320	8/22/20:7	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-002	7H GPU Run 1 Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-003	7H GPU Run 1 Pilot Gas Stainless Fitting	OG)	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-004	7H GPU Run 2 Fuel Supply Union	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-005	5H GPU Run 2 Solenoid Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-006	5H GPU Run 1 Solenoid Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-007	3H GPU Run 2 Fuel Supply Union	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-008	3H GPU Run 2 Fuel Supply 1/2 Inch Nipple	OGI	FLIR GF 320	8/22/2017	9/21/2017	9/1/2017	1st Relaped	9/1/2017	YES
TUNA-20170822-009	3H GPU Run 2 Fuel Supply 1 Inch Nipple	OGI	FLIR GF 320	8/22/2017	9/21/2017	9/1/2017	1st Retaped	9/1/2017	YES
TUNA-20170822-010	3H GPU Run 1 Fuel Supply Gauge	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-011	1H GPU Run 2 Pilot Gas Stainless Fitting	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tigntened	8/22/2017	YES
TUNA-20170822-012	1H GPU Run 2 Union	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES
TUNA-20170822-013	1H GPU Run 2 Union	OGI	FLIR GF 320	8/22/2017	9/21/2017	8/22/2017	1st Tightened	8/22/2017	YES

inspection Personnel	OGI Certification Number
Chris Moses Jr	163753



WELLPAD	Tuna Nut wellp	Tuna Nut wellpad							
ON-SITE CONTACT	Jed Marshall	ed Marshail							
DATE TESTED	8/22/2017	START TIME	1040	END TIME	1330				
SKY CONDITIONS	Cloudy	AMBIENT TEMP	80	WIND SPEED	13				

CAMERA MODEL	FLIR GF 320
CAMERA ID NUMBER	S/N: 44401600
CAMERA CERTIFICATION DATE	8 August 2016
DAILY VERIFICATION DATE	8/22/22017
MAXIMUM VIEWING DISTANCE	25 feet

MONITORING COMPANY	Premier Energy Services, LLC
MONITORING TECHNICIAN	Chris Moses
TECHNICIAN CERTIFIED? (Y/N)	YES
TECHNICIAN YEARS OF EXPERIENCE	2 Months

	LEAKS DETECTED (Attach additional sheets if necessary)				
Lo	ocation Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description <u>For Each</u> Attempt
1	7H GPU Run 1 Supply to High- Low	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
2	7H GPU Run 1 Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
3	7H GPU Run 1 Pilot Gas Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
4	7H GPU Run 2 Fuel Supply Union	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	I st Tightened
5	5H GPU Run 2 Solenoid Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
6	5H GPU Run 1 Solenoid Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	2
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	7
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0



AT LEAST ONE STILL IMAGE IS ATTACHED (<)	7
ALL STILL IMAGES ARE DATED AND GIS ENABLED (V)	√
LEAKER STILL IMAGES ARE ATTACHED (or N/A)	,
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (<)	
DELAY OF REPAIR FORMS COMPLETE (or N/A)	N/A

ADDITIONAL OHIO CALCULATION:

 $\frac{Leak\% = \frac{Leak}{\times 100}\%}{Count_{Est}}$

LEAKER COUNT	13
ESTIMATED COMPONENT COUNT*	1073
LEAK PERCENT**	1.21

^{*}Provided by Emission Permitting Specialist or Coordinator: estimated using Subpart Wipopulation count factors.

01/2				
m:	 .	77	A	2011
Signature:\\%\\	Date:	46	1109 5	6211
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	100044444444444600000000000000000000000	0000000		•

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.



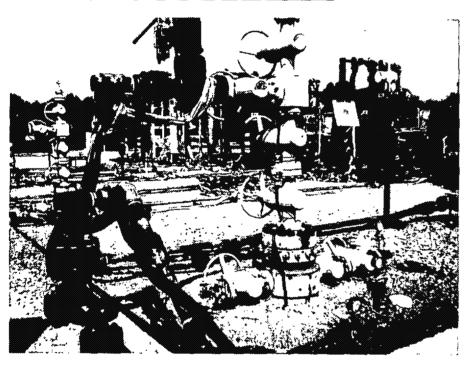
Lc	ocation Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Corrective Action Description For Each Attempt
7	BH GPU Run 2 Fuel Supply Union	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	I st Tightened
8	3H GPU Run 2 Fuel Supply ½ Inch Nipple	8/22/2017	9/1/2017	FLIR GF 320 S/N: 44401600	1 st Retaped
9	3H GPU Run 2 Fuel Supply 1 Inch Nipple	8/22/2017	9/1/2017	FUR GF 320 S/N: 44401600	1 st Retaped
10	OLI COLI Diam I Carel	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	I st Tightened
11	1H GPU Run 2 Pilot Gas Stainless Fitting	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	I st Tightened
12	IH GPU Run 2 Union	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened
13	1H GPU Run 2 Union	8/22/2017	8/22/2017	FLIR GF 320 S/N: 44401600	1 st Tightened

### Initial Site Photo

Location: Well Head

Date & Time: 8/22/2017 10:57:47 AM Geolocation: N 39° 57' 3.24", W 81° 4' 24.48"

http://maps.google.com?z=17&t=k&q=39.9509,-81.0735



### Camera Verification Photo

Location: GPU Stack

Date & Time: 8/22/2017 10:58:51 AM Geolocation: N 39° 57' 3.09", W 81° 4' 24.44"

http://maps.google.com?z=17&t=k&q=39.9509,-81.0735

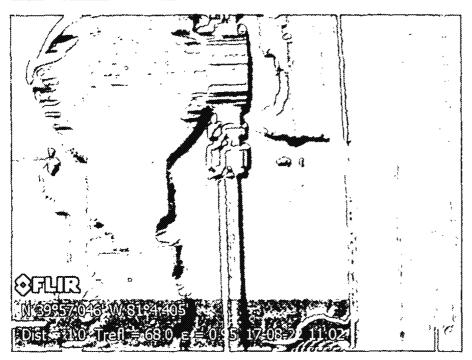


### TUNA-20170822-001IR Leaking

Location: 7H GPU Run 1 Supply to High-Low

Date & Time: 8/22/2017 11:02:36 AM Geolocation: N 39° 57' 2.75", W 81° 4' 24.29"

http://maps.google.com?z=17&t=k&q=39.9508,-81.0734

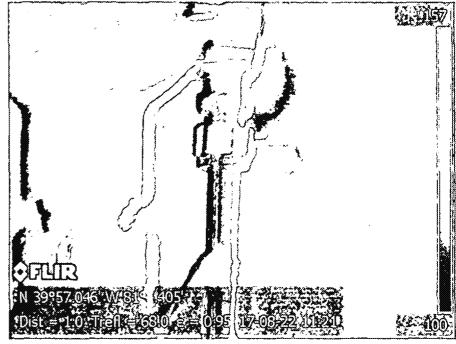


### TUNA-20170822-001IR Repaired

Location: 7H GPU Run 1 Supply to High-Low

Date & Time: 8/22/2017 11:21:14 AM Geolocation: N 39° 57' 2.74", W 81° 4' 24.29"

http://maps.google.com?z=17&t=k&g=39.9508,-81.0734

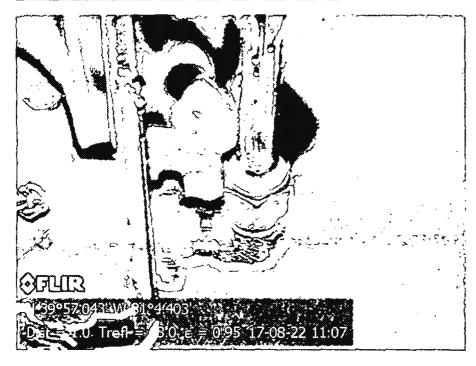


### TUNA-20170822-002IR Leaking

Location: 7H GPU Run 1 Stainless Fitting

Date & Time: 8/22/2017 11:07:29 AM Geolocation: N 39° 57' 2.57", W 81° 4' 24.18"

http://maps.google.com?z=17&t=k&q=39.9507,-81.0734

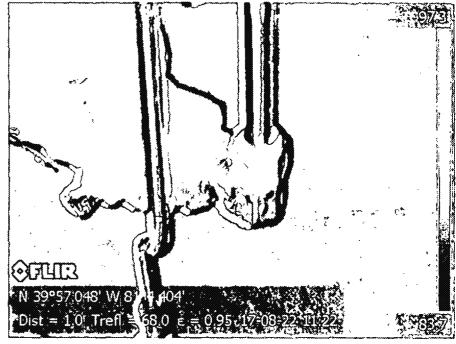


### TUNA-20170822-002IR Repaired

Location: 7H GPU Run 1 Stainless Fitting

Date & Time: 8/22/2017 11:22:14 AM Geolocation: N 39° 57' 2.89", W 81° 4' 24.23"

http://maps.google.com?z=17&t=k&q=39.9508,-81.0734

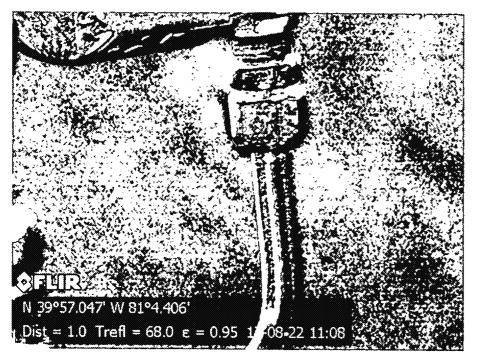


### TUNA-20170822-003IR Leaking

Location: 7H GPU Run 1 Pilot Gas Stainless Fitting

Date & Time: 8/22/2017 11:08:41 AM Geolocation: N 39° 57' 2.79", W 81° 4' 24.38"

http://maps.google.com?z=17&t=k&g=39.9508,-81.0734

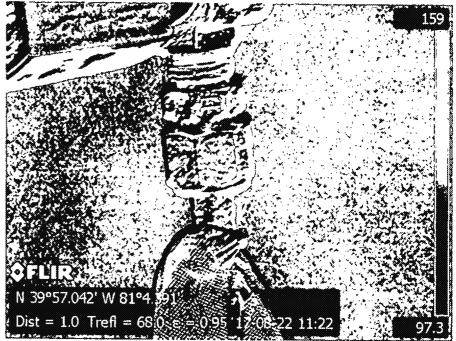


### TUNA-20170822-003IR Repaired

Location: 7H GPU Run 1 Pilot Gas Stainless Fitting

Date & Time: 8/22/2017 11:23:00 AM Geolocation: N 39° 57' 2.50", W 81° 4' 23.46"

http://maps.google.com?z=17&t=k&q=39.9507,-81.0732

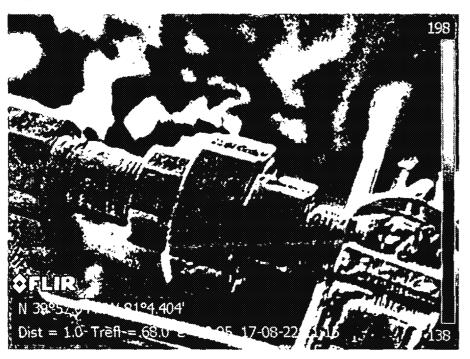


### TUNA-20170822-004IR Leaking

Location: 7H GPU Run 2 Fuel Supply Union

Date & Time: 8/22/2017 11:15:05 AM Geolocation: N 39° 57' 2.66", W 81° 4' 24.22"

http://maps.google.com?z=17&t=k&g=39.9507,-81.0734

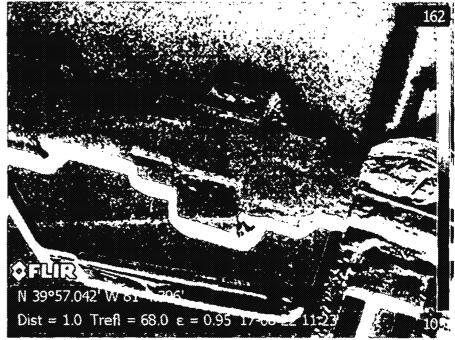


### TUNA-20170822-004IR Repaired

Location: 7H GPU Run 2 Fuel Supply Union

Date & Time: 8/22/2017 11:24:00 AM Geolocation: N 39° 57' 2.54", W 81° 4' 23.75"

http://maps.google.com?z=17&t=k&q=39.9507,-81.0733



### TUNA-20170822-005IR Leaking

Location: 5H GPU Run 2 Solenoid Stainless Fitting

Date & Time: 8/22/2017 11:30:33 AM Geolocation: N 39° 57' 2.69", W 81° 4' 24.47"

http://maps.google.com?z=17&t=k&q=39.9507,-81.0735



### TUNA-20170822-005IR Repaired

Location: 5H GPU Run 2 Solenoid Stainless Fitting

Date & Time: 8/22/2017 11:38:33 AM Geolocation: N 39° 57' 2.93", W 81° 4' 24.58"

http://maps.google.com?z=17&t=k&q=39.9508,-81.0735

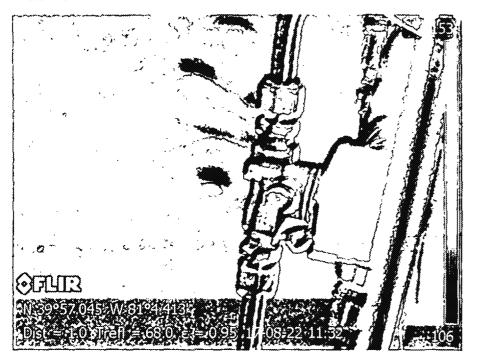


### TUNA-20170822-006IR Leaking

Location: 5H GPU Run 1 Solenoid Stainless Fitting

Date & Time: 8/22/2017 11:32:14 AM Geolocation: N 39° 57' 2.68", W 81° 4' 24.80"

http://maps.google.com?z=17&t=k&q=39.9507,-81.0736



### TUNA-20170822-006IR Repaired

Location: 5H GPU Run 1 Solenoid Stainless Fitting

Date & Time: 8/22/2017 11:39:17 AM Geolocation: N 39° 57' 2.95", W 81° 4' 24.90"

http://maps.google.com?z=17&t=k&q=39.9508,-81.0736

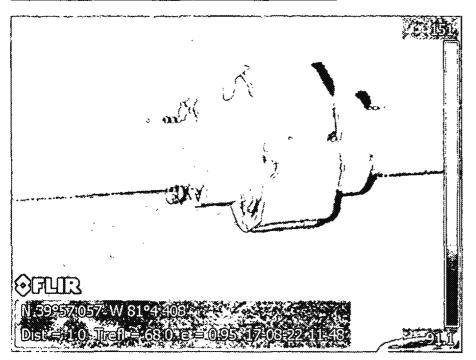


### TUNA-20170822-007IR Leaking

Location: 3H GPU Run 2 Fuel Supply Union

Date & Time: 8/22/2017 11:48:41 AM Geolocation: N 39° 57' 3.39", W 81° 4' 24.49"

http://maps.google.com?z=17&t=k&q=39.9509,-81.0735

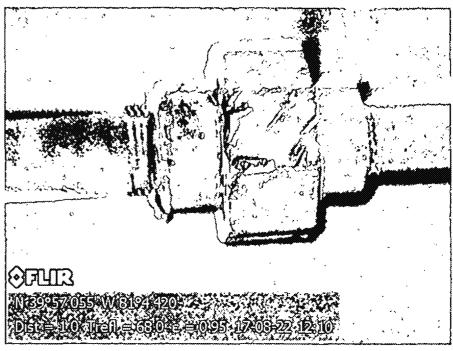


### TUNA-20170822-007IR Repaired

Location: 3H GPU Run 2 Fuel Supply Union

Date & Time: 8/22/2017 12:10:42 PM Geolocation: N 39° 57' 3.31", W 81° 4' 25.18"

http://maps.google.com?z=17&t=k&q=39.9509,-81.0737

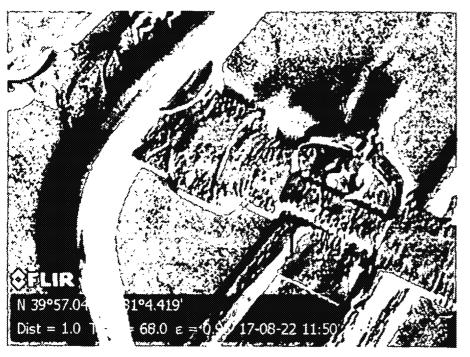


### TUNA-20170822-008IR Leaking

Location: 3H GPU Run 2 Fuel Supply 1/2 Inch Nipple

Date & Time: 8/22/2017 11:50:34 AM Geolocation: N 39° 57' 2.96", W 81° 4' 25.12"

http://maps.google.com?z=17&t=k&q=39.9508,-81.0736



### TUNA-20170822-008IR Repaired

Location: 3H GPU Run 2 Fuel Supply ½ Inch Nipple

Date & Time: 9/1/2017 8:29:27 AM

Geolocation: N 39° 57' 2.88", W 81° 4' 25.04"

http://maps.google.com?z=17&t=k&q=39.9508,-81.0736



### TUNA-20170822-009IR Leaking

Location: 3H GPU Run 2 Fuel Supply 1 Inch Nipple

Date & Time: 8/22/2017 11:52:41 AM Geolocation: N 39° 57' 3.02", W 81° 4' 24.99"

http://maps.google.com?z=17&t=k&q=39.9508,-81.0736



### TUNA-20170822-009IR Repaired

Location: 3H GPU Run 2 Fuel Supply ½ Inch Nipple

Date & Time: 9/1/2017 8:30:18 AM

Geolocation: N 39* 57' 2.42", W 81* 4' 24.79"

http://maps.google.com?z=17&t=k&q=39.9507,-81.0736

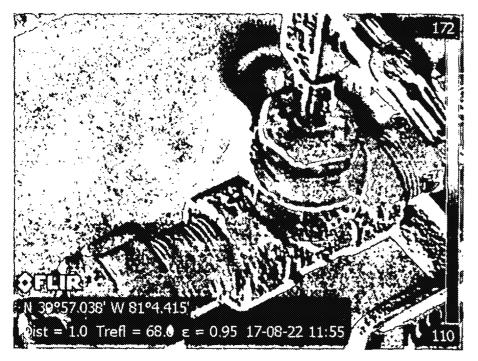


### TUNA-20170822-010IR Leaking

Location: 3H GPU Run 1 Fuel Supply Gauge

Date & Time: 8/22/2017 11:55:45 AM Geolocation: N 39° 57' 2.27", W 81° 4' 24.91"

http://maps.google.com?z=17&t=k&g=39.9506,-81.0736

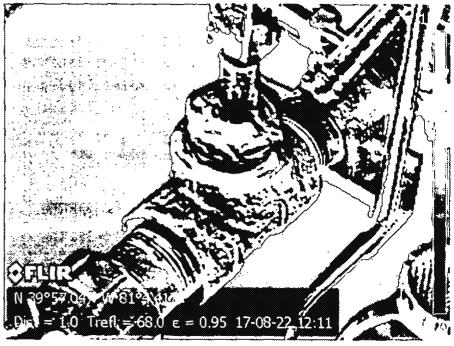


### TUNA-20170822-010IR Repaired

Location: 3H GPU Run 1 Fuel Supply Gauge

Date & Time: 8/22/2017 12:11:30 PM Geolocation: N 39° 57' 2.81", W 81° 4' 25.00"

http://maps.google.com?z=17&t=k&g=39.9508,-81.0736

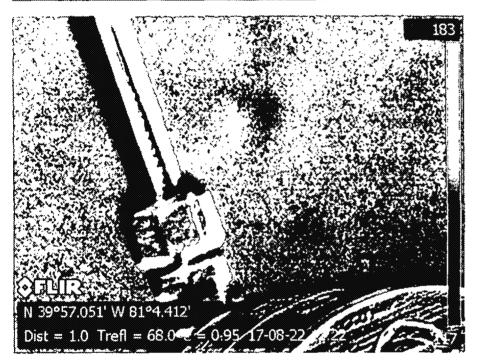


#### TUNA-20170822-011IR Leaking

Location: 1H GPU Run 2 Pilot Gas Stainless Fitting

Date & Time: 8/22/2017 12:22:10 PM Geolocation: N 39° 57' 3.04", W 81° 4' 24.74"

http://maps.google.com?z=17&t=k&q=39.9508,-81.0735

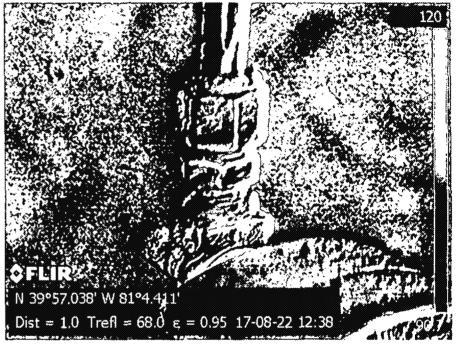


#### TUNA-20170822-011IR Repaired

Location: 1H GPU Run 2 Pilot Gas Stainless Fitting

Date & Time: 8/22/2017 12:38:49 PM Geolocation: N 39° 57' 2.26", W 81° 4' 24.68"

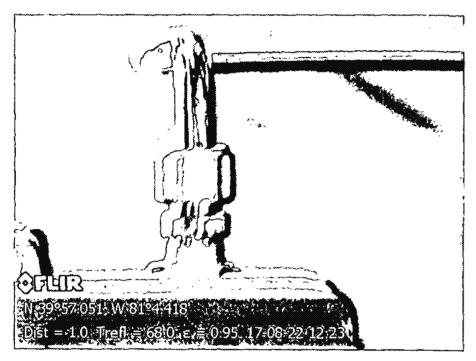
http://maps.google.com?z=17&t=k&q=39.9506,-81.0735



### TUNA-20170822-012IR Leaking

Location: IH GPU Run 2 Union
Date & Time: 8/22/2017 12:23:10 PM
Geolocation: N 39° 57' 3.07", W 81° 4' 25.08"

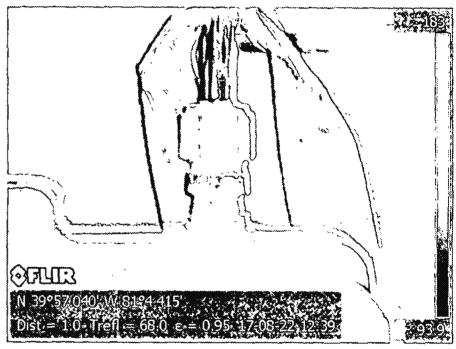
http://maps.google.com?z=17&t=k&q=39,9509,-81.0736



### TUNA-20170822-012IR Repaired

Location: 1H GPU Run 2 Union
Date & Time: 8/22/2017 12:39:34 PM
Geolocation: N 39° 57' 2.42", W 81° 4' 24.93"

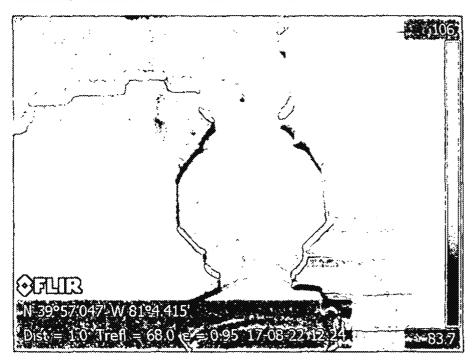
http://maps.google.com?z=17&t=k&q=39.9507,-81.0736



#### TUNA-20170822-013IR Leaking

Location: 1H GPU Run 2 Union
Date & Time: 8/22/2017 12:24:36 PM
Geolocation: N 39° 57' 2.79", W 81° 4' 24.88"

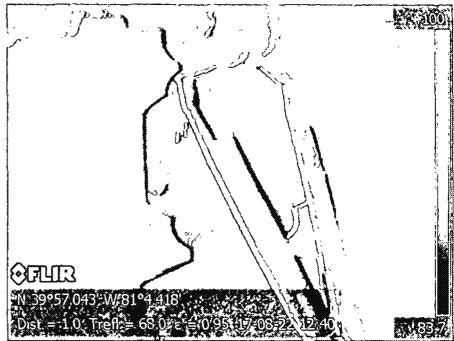
http://maps.google.com?z=17&t=k&q=39.9508,-81.0736



#### TUNA-20170822-013IR Repaired

Location: 1H GPU Run 2 Union
Date & Time: 8/22/2017 12:40:21 PM
Geolocation: N 39° 57' 2.58", W 81° 4' 25.13"

http://maps.google.com?z=17&t=k&q=39.9507,-81.0736



October 25, 2017

Ohio Environmental Protection Agency Division of Air Pollution Control Southeast District Office 2195 Front Street Logan, OH 43138

Re:

Strike Force East, LLC

**NSPS Subpart OOOOa Annual Report** 

To whom it may concern:

Strike Force East, LLC (SFE) is submitting the attached report for NSPS Subpart OOOOa, as required by 40 CFR §60.5420a(b). This report contains the information specified in §60.5420a(b)(1), (b)(7), and (b)(8).

The report covers the period of August 2, 2016 through August 1, 2017.

Should you have any questions or comments about this submittal, please contact me at (412) 400-6887 or at kristin.ryan@riceenergy.com.

Sincerely,

Kristin Ryan

**Emissions Permitting Specialist** 

Rice Energy, Inc.

Cc:

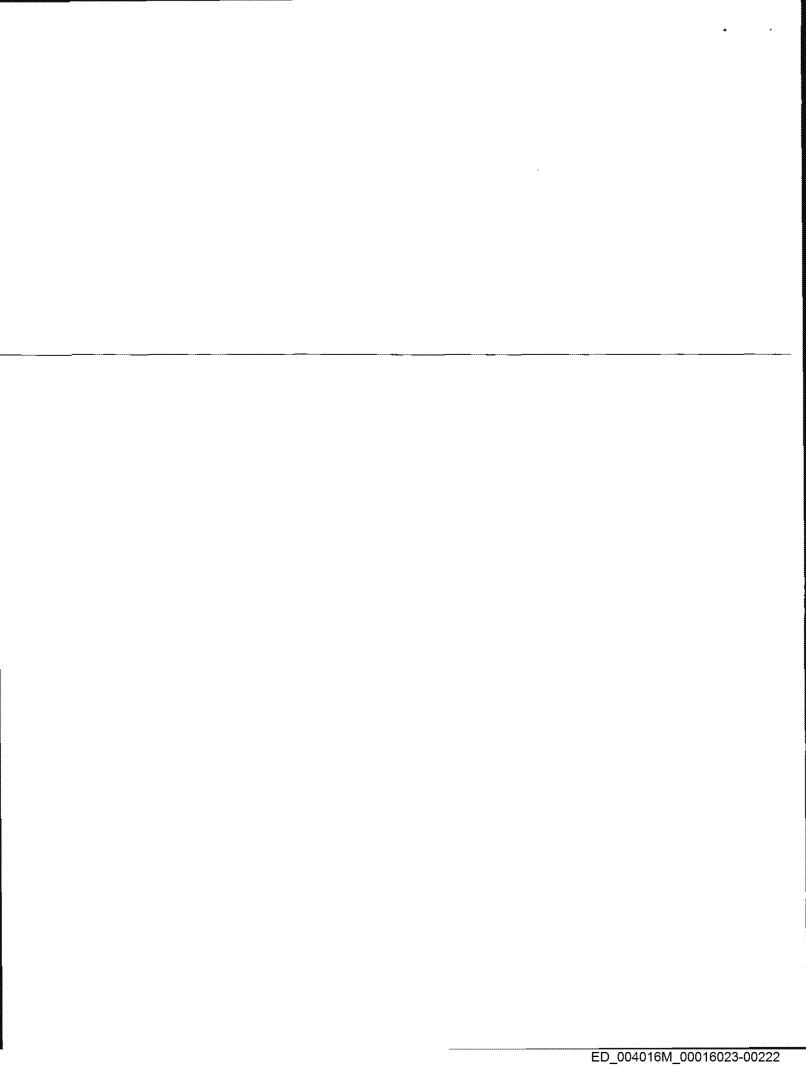
Director, Air and Radiation Division

US Environmental Protection Agency, Region V

77 West Jackson Boulevard Chicago, IL 60604-3590

**Enclosures** 





# Strike Force East LLC NSPS Subpart OOOOa Annual Report

#### **General Information**

**Company Name:** 

Strike Force East LLC

Address:

2200 Rice Drive

Canonsburg, PA 15317

Reportir	ng Period
Start Date	End Date
8/2/2016	8/1/2017

#### **Report Preparer**

Name:

Kristin Ryan

Title:

**Emissions Permitting Coordinator** 

Phone:

412-400-6887

Email:

kristin.ryan@riceenergy.com

#### **Certifying Official**

Name:

**Justin Trettel** 

Title:

VP of Midstream Operations and Engineering

Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature

10/25/2017 Date

Rice Grilling B, LLC NSPS Subpart ODDOa Annual Report

Pneumatic Pump Affected facilities

Pneumatic Pumps Constructed Modified, or Reconstructed During the Reporting Period:

į		ł	į	į	Wember of	Ng control device or process is available on site	Technically infeatible to capture and rouse the emissions to the control device or process	instances from the presentation pre-routed to a control device of process.	Records of Devisions Coruntes Suring site		
Chartie	53350 E. Captina Hwy	Powhatan Point Beimont	Beimon	8	-	W.	×	1,50	Market Strategics	PE certification allached	
Servey.	70059 Barton Road	St. Clairsville	Seimons	ğ	7		×			PE certification attached	
Snodgrass	66782 Etisert South Road	St. Clairsville	Belmont	ő	Į.		×			PE certification attached	
Valerie	56530 Mt. Victory Road	Sandahasal.	Belmont	ă	-		×	-		PE certification attached	
	STIDOS MANA					New control device and erfestions are controlled	Now control device and sectionally infereible to capture and route the embalant to the senticel device.	Control device or process sections device or process Control device or process sections sections in sections of the control device or process or control devices for the emission of the control of the control device or process sections or set or events or set or process.	Control device or process.  Was removed and now Leptinically transable to Leptinically and transable to Leptinically and transable to Capture and transable to centacions to amother control identic or process		
Well Sitte	Street Address	À	County	State	Pursp 10	(%)	(X)	Š	×	Reporting Period	Caroments
47.76	~		_	_			-				

^{*} of the control device is designed to activene less than 95 percent emissions reduction, specify the percent emissions reductions the control device is designed to activene.

As specified in 90 CFR 60 5420ate||16||i||



2200 Rice Drive Canonsburg, PA 15317 40 CFR Subpart OOOOa Compliance Plan - Midstream

#### Diaphragm Pumps

LOCATION

Charlie

911 ADDRESS

53250 East Captina Highway

Powhatan Point, OH

COUNTY

Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	November 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
  - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
  - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
- 2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
  - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

SFE CHARLIE

"I certify that the assessment of technical infeasibility was prepared under my direction or supervision. I further certify that the assessment was conducted and this report was prepared pursuant to the requirements of §60.5393a(b)(5)(iii). Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false information."

Cody Baker
Facilities Project Engineer
cody.baker@riceenergy.com
Phone: 724-271-7638

losty Baker

Cory Harris, P.E. Environmental Engineer cory.harris@riceenergy.com

Phone: 724-271-7718

CORY A. HARRIS

SFE CHARLIE



2200 Rice Dríve Canonsburg, PA 15317 40 CFR Subpart OOOOa Compliance Plan - Midstream

#### Diaphragm Pumps

LOCATION

Dorsey

911 ADDRESS

70059 Barton Road

St. Clairsville, OH

COUNTY

Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	March 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED - Yes / No	No
GREENFIELD SITE – Yes / No	No

Lomments			
	·	 •	 

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
  - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
  - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
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  - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

**SFE DORSEY** 

"I certify that the assessment of technical infeasibility was prepared under my direction or supervision. I further certify that the assessment was conducted and this report was prepared pursuant to the requirements of §60.5393a(b)(5)(iii). Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false information."

Cody Baker
Facilities Project Engineer
cody.baker@riceenergy.com
Phone: 724-271-7638

auffer

Cory Harris, P.E. Environmental Engineer cory.harris@riceenergy.com

Phone: 724-271-7718

HARRIS

SEE DORSEY



2200 Rice Drive Canonsburg, PA 15317 40 CFR Subpart OOOOa Compliance Plan - Midstream

#### Diaphragm Pumps

LOCATION

**Snodgrass** 

911 ADDRESS

66782 Ebbert South Road

St. Clairsville, OH

COUNTY

Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	June 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED - Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
  - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
  - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
- 2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
  - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

SFE SNODGRASS

"I certify that the assessment of technical infeasibility was prepared under my direction or supervision. I further certify that the assessment was conducted and this report was prepared pursuant to the requirements of §60.5393a(b)(5)(iii). Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false information."

Cody Baker
Facilities Project Engineer
cody.baker@riceenergy.com
Phone: 724-271-7638

Coopper

Cory Harris, P.E. Environmental Engineer cory.harris@riceenergy.com

Phone: 724-271-7718

CORYA-HARRIS E-82396

SFE SNODGRASS



2200 Rice Drive Canonsburg, PA 15317 40 CFR Subpart OOOOa Compliance Plan - Midstream

#### Diaphragm Pumps

LOCATION

Valerie

911 ADDRESS

56530 Mt. Victory Road

Jacobsburg, OH

COUNTY

Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	November 2016
- APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED – Yes / No	No
GREENFIELD SITE - Yes / No	No

Comments				
	***************************************	······································		·····

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
  - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
  - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
- 2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
  - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

SFE VALERIE

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Cody Baker
Facilities Project Engineer
cody.baker@riceenergy.com
Phone: 724-271-7638

ColyBor

Cory Harris, P.E. Environmental Engineer cory.harris@riceenergy.com

Rhoneu 7724-271-7718

CORY A. HARRIS E-82396

SFE VALERIE

# Strike Force East LLC NSPS Subpart OOOOa Annual Report

### **Fugitive Components at Well Sites**

Well Site	Street Address	City	County	State	Date(s) of Monitoring Surveys
Charlie	53250 E. Captina Hwy	Powhatan Point	Belmont	ОН	9/26/2017
Dorsey	70059 Barton Road	St. Clairsville	Belmont	ОН	9/26/2017
Snodgrass	66782 Ebbert South Road	St. Clairsville	Belmont	ОН 🦿	9/26/2017
Valerie	56530 Mt. Victory Road	Jacobsburg	Belmont	ОН	9/25/2017



STATION	CHARLI	کا		•••	•••••••••••••••••••••••••••••••••••••••		
ON-SITE CONTACT	J.C J	OYNSC	W				
DATE TESTED	9-26-17	START TI	ME	12:20 pm	END TIME	12: 45 PM	
SKY CONDITIONS	CLEAR	AMBIENT	TEMP	850	WIND SPEED	3 MPH	
CAMERA MODEL		GF	X 320		and the same of th	·	
CAMERA ID NUMBER	<b>k</b>	18	7490010	)2			
CAMERA CERTIFICA	TION DATE	2/	27/2017				
DAILY VERIFICATION	IDATE	9	7-26	-2017	***************************************		
MAXIMUM VIEWING	DISTANCE	25	feet				
MONITORING COMPA	\NY	RI	CE POSE	JOON MIDSTR	EAM	****	
MONITORING TECHN	ol	HN ROW	/E				
TECHNICIAN CERTIFIED? (Y/N)			S				
TECHNICIAN YEARS	OF EXPERIENC	Æ	3 m	つひろなら			
	LEAKS DETEC				necessary)	***************************************	
Location Description Date Date Repair			Description for Look				
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3							
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6							
NUMBER OF COMPO	NENTS NOT RE	PAIRED D	URING I	NITIAL SCAN (	#) 0		
ALL UNREPAIRED CO	MPONENTS H	AVE BEEN	TAGGE	D (<)	N/A	·····	
NUMBER OF DIFFICU	LT-TO-MONITO	R COMPO	NENTS	SCANNED (#)	7		
NIIMOER OF INSAFE	TO MONITOR	COMPONE	NITE CO	ANNED (#)			



ALL STILL IMAGES ARE DATED AND GIS ENABLED (*)	
LEAKER STILL IMAGES ARE ATTACHED ( or N/A)	
REPAIR STILL IMAGES ARE ATTACHED ( or N/A)	
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (*)	
DELAY OF REPAIR FORMS COMPLETE ( or N/A)	

#### ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{ak \times 100\%}{Count_{Est}}$ 

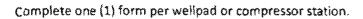
				***************************************		
LEAKER COUNT						***************************************
				·		
ESTIMATED COMPONENT COUNT*						
				·		{
LEAK PERCENT**	}					
	ESTIMATED COMPONENT COUNT*	LEAKER COUNT  ESTIMATED COMPONENT COUNT*	LEAKER COUNT  ESTIMATED COMPONENT COUNT*	LEAKER COUNT  ESTIMATED COMPONENT COUNT*	ESTIMATED COMPONENT COUNT*	LEAKER COUNT  ESTIMATED COMPONENT COUNT*

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly

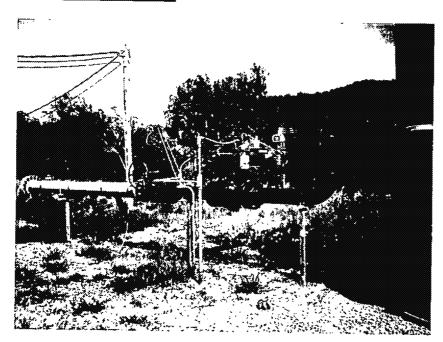
### **LDAR** Image Title Form





LOCATION		CHARLIE		NITIAL SITE PHOTO	DC_0134
TECHNICIA DATE TEST	N _	7-26-2	WE CA	MERA VERIFICATION PHOTO	IR_0135
SD Card #	SANDL	SK 8 GB	3 0410 "	<i>*</i> 3	
Leak	Date	LR	Digital	IR Picture	IR Movie
1					
2 _					
3					
4					
5		1			
6					
7					
8					

# **Initial Site Photo**



# **Camera Verification Photo**





STATION	DOESEY					
ON-SITE CONTACT	3,60	OYNSON	7			
DATE TESTED	9-26-17	START TIME		1:50 PM	END TIME	3:20 PM
SKY CONDITIONS	CHEAR	AMBIENT T	EMP	860	WIND SPEED	3:20 PM
CAMERA MODEL		GFX	320			
CAMERA ID NUMBER		SN 7	490010	2		Trock diameter
CAMERA CERTIFICA	TION DATE	2/27	/2017	and the second s		
DAILY VERIFICATION	I DATE	9-	-26	-2017		
MAXIMUM VIEWING	DISTANCE	25 fe	et			* 4.44.004.00000000000000000000000000000
MONITORING COMPA	ANY	RICE	E POSE	IDON MIDSTR	EAM	
MONITORING TECHN	ICIAN	JOH	N ROW	E	······································	
TECHNICIAN CERTIF	IED? (Y/N)	YES				
TECHNICIAN YEARS	OF EXPERIEN	CE 3	mo	NTH'S		
	LEAKS DETEC					V
Location Description	Data	Date Repaired	Ca	mera Model ID for Rescan	Correcti Descriptio	ve Action n <u>For Each</u> empt
1						***************************************
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3						
4				. ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1	
5						
6						
NUMBER OF COMPO	NENTS NOT RE	EPAIRED DUI	RING II	NITIAL SCAN (	(#)	7
ALL UNREPAIRED CO	OMPONENTS H	IAVE BEEN T	AGGE	D (<)	N	A
NUMBER OF DIFFICU	LT-TO-MONITO	OR COMPONI	ENTS S	CANNED (#)		)
NUMBER OF UNSAFE	-TO-MONITOR	COMPONEN	TS SC	ANNED (#)		



	and the same of th
AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	V
ALL STILL IMAGES ARE DATED AND GIS ENABLED (V)	
LEAKER STILL IMAGES ARE ATTACHED ( or N/A)	NA
REPAIR STILL IMAGES ARE ATTACHED ( or N/A)	NA
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* ( </td <td></td>	
DELAY OF REPAIR FORMS COMPLETE ( or N/A)	NA
*16.55	· · · · · · · · · · · · · · · · · · ·

#### **ADDITIONAL OHIO CALCULATION:**

 $Leak\% = \frac{ak \times 100\%}{Count_{Est}}$ 

	LEAKER COUNT		
1		†·····································	
	ESTIMATED COMPONENT COUNT*		
	LEAK PERCENT**		
- 3		1	

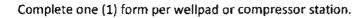
^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

Signature: ________ Date: <u>7-26-2017</u>

stIf either plan or path were not followed, please include a written description and explanation with this form.

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

# **LDAR Image Title Form**



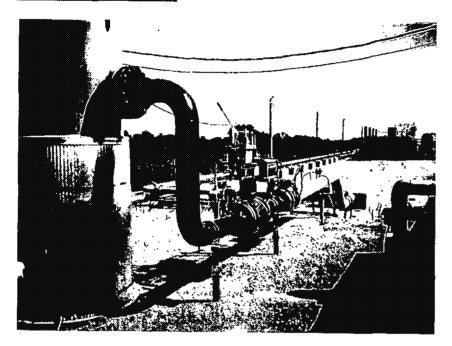


LOCATION	DORSEY	INITIAL SITE PHOTO	DC_0137
TECHNICIAN	JOHN ROWE	CAMERA VERIFICATION PHOTO	IR_0136
DATE TESTED	9-26-2017		*

	***************************************			
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SU Card #	SOUNISE	8 LK	X 4//7 -	~
	John	00	<u> </u>	*

Leak	Date	L	R	Digital	IR Picture	IR Movie
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5						
6						
7						
8						
* **				**************************************		

# **Initial Site Photo**



# **Camera Verification Photo**





STATION	STATION SNODGRASS						
ON-SITE CONTACT	J.C. JO	•					
DATE TESTED	9-26-17	START TIM	END TIME	3:05			
SKY CONDITIONS	CLEAR	AMBIENT T	EMP 86	WIND SPEED	3:05 4 m/H		
CAMERA MODEL		GFX	320	······································			
CAMERA ID NUMBER	<u> </u>	SN 7	4900102				
CAMERA CERTIFICA	TION DATE	2/27	/2017				
DAILY VERIFICATION	DATE	9	-26-2017	<b>3</b>			
MAXIMUM VIEWING	DISTANCE	25 fe	et	······································			
MONITORING COMPANY RICE POSEIDON MIDSTREAM							
MONITORING TECHN	ICIAN	юно	N ROWE		**************************************		
TECHNICIAN CERTIF	ED? (Y/N)	YES					
TECHNICIAN YEARS	OF EXPERIENC	CE 3	MONTAS				
LEAKS DETECTED (Attach additional sheets if necessary)  Date Date Camera Model Corrective Action  Location Description Detected Repaired and ID for Rescan							
	Nata			Corrective Description			
Location Description	Date	Date	Camera Model	Corrective Description	n <u>For Each</u>		
Location Description  1 2	Date	Date	Camera Model	Corrective Description	n <u>For Each</u>		
Location Description	Date	Date	Camera Model	Corrective Description	n <u>For Each</u>		
Location Description  1 2 3	Date	Date	Camera Model	Corrective Description	n <u>For Each</u>		
Location Description  1 2 3 4 5	Date	Date	Camera Model	Corrective Description	n <u>For Each</u>		
Location Description  1 2 3	Date	Date	Camera Model	Corrective Description	n <u>For Each</u>		
Location Description  1 2 3 4	Date Detected	Date Repaired	Camera Model and ID for Rescar	Corrective Description Atte	n <u>For Each</u>		
Location Description  1 2 3 4 5	Date Detected	Date Repaired	Camera Model and ID for Rescar	Corrective Description Atte	n <u>For Each</u>		
Location Description  1 2 3 4 5 NUMBER OF COMPON	Date Detected  NENTS NOT RE	Date Repaired  PAIRED DUF	Camera Model and ID for Rescar	Corrective Description Atte	n <u>For Each</u>		



	/
AT LEAST ONE STILL IMAGE IS ATTACHED (<)	
ALL STILL IMAGES ARE DATED AND GIS ENABLED (1/)	V.
LEAKER STILL IMAGES ARE ATTACHED ( or N/A)	NA
REPAIR STILL IMAGES ARE ATTACHED ( or N/A)	NA
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* ( </td <td></td>	
DELAY OF REPAIR FORMS COMPLETE ( or N/A)	NIA
*If either plan or path were not followed, please include a written description and expla	nation with this form
ADDITIONAL OHIO CALCULATION:	
$Leak\% = \frac{a^k \times 100\%}{}$	
$Count_{Est}$	
LEAKER COUNT	
ESTIMATED COMPONENT COUNT*	
LEAK PERCENT**	

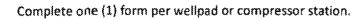
Signature: Joh S. Row Date: 9-26-2017

ED_004016M_00016023-00243

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

### **LDAR Image Title Form**



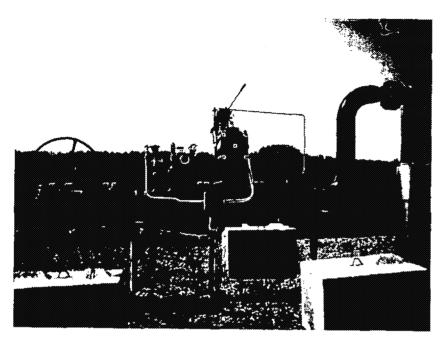


LOCATION	SNODERASS	INITIAL SITE PHOTO	DC_C	139
TECHNICIAN	JOHN ROWE	CAMERA VERIFICATION PHOTO	IR_O	138
DATE TESTED	9-26-2017			

		B C-	4
SD Card #	CAILAICL	$X \leftarrow IZ$	ヘルノハ イ
	SUNUO	000	

Leak	Date	L R	Digital	IR Picture	IR Movie
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2					
3					\$
4					
5					
6					-
7					
8 _					

# **Initial Site Photo**



# **Camera Verification Photo**





		, ~				********	
SI	ATION VALERIE						
OI	N-SITE CONTACT	SHANE	MURRAY				
DA	ATE TESTED	9-25-17	START TIME	12:45 AM	END TIME	1.15	
SH	Y CONDITIONS	CLEAR	AMBIENT TE	MP 840	WIND SPEED	3 MPX	
CA	MERA MODEL		GFX	320	······································		
CA	MERA ID NUMBER	Ł .	SN 74	1900102			
CA	MERA CERTIFICA	TION DATE	2/27/	2017			
DA	ULY VERIFICATION	DATE	9.	25-2017	1		
M	XIMUM VIEWING D	DISTANCE	25 fee	t			
MC	ONITORING COMPA	INY	RICE	POSEIDON MIDSTRE	EAM		
MC	NITORING TECHN	ICIAN	JOHN	ROWE		<u>-</u>	
TE	CHNICIAN CERTIFI	ED? (Y/N)	YES		av	TO THE PROPERTY OF THE PROPERT	
TE	CHNICIAN YEARS	OF EXPERIEN	SE 3	MONTHS			
	<u>^</u>	LEAKS DETEC		ıdditional sheets if n	eressarvì	· · · · · · · · · · · · · · · · · · ·	
					Correctiv	a Antion	
	cation Description	Detected	Date Repaired	Camera Model and ID for Rescan	Description Atte	For Each	
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2	! 						
3							
4							
5							
6							
NU	MBER OF COMPO	NENTS NOT RE	PAIRED DUR	ING INITIAL SCAN (	#)	)	
AL	L UNREPAIRED CO	MPONENTS H	AVE BEEN TA	\GGED (✓)	NIA		
NU	MBER OF DIFFICU	LT-TO-MONITO	R COMPONE	NTS SCANNED (#)	0		
		***************************************					

RICE			
RICE	EV	<b>JER</b>	GY

AT LEAST ONE STILL IMAGE IS ATTACHED ( </th <th></th>	
ALL STILL IMAGES ARE DATED AND GIS ENABLED (1)	
LEAKER STILL IMAGES ARE ATTACHED ( or N/A)	
REPAIR STILL IMAGES ARE ATTACHED ( or N/A)	
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (*)	
DELAY OF REPAIR FORMS COMPLETE ( or N/A)	NIA
*If either plan or path were not followed, please include a written description and expla	nation with this form.
ADDITIONAL OHIO CALCULATION:	
$Leak\% = \frac{ak}{100\%}$	
$Count_{Est}$	
LEAKER COUNT	
ESTIMATED COMPONENT COUNT*	
LEAK PERCENT**	
*On ideal Crisis Complete Control of the Control of	

Signature: 12 Date: 9-25-2017

ED_004016M_00016023-00247

Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors,

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly

### **LDAR** Image Title Form

Complete one (1) form per wellpad or compressor station.

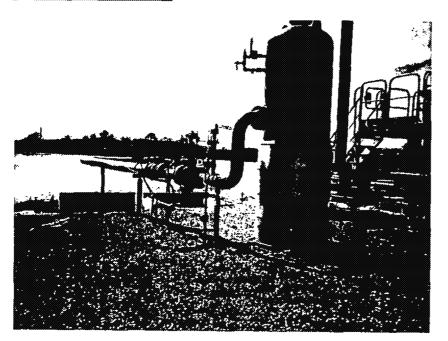


LOCATION	VALSRIE	INITIAL SITE PHOTO	DC_0096
TECHNICIAN	SOHN ROWS	CAMERA VERIFICATION PHOTO	IR_0097
DATE TESTED	8-25-2017		

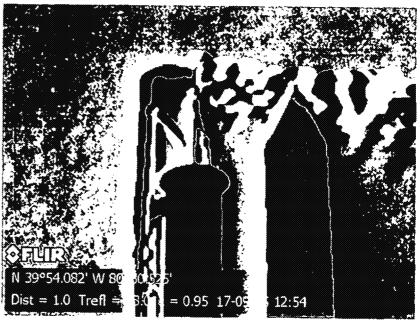
SD Card# SANDISK 86B OHIO# 2

Leak	Date	L	R		Digital	IR	Picture	IR Movie
1	9-25-2017	1		DC_	0099	IR_	0098	MOV_ 0100
	9-25-2017	R		<u>DC_</u>	0102	IR_	_ 0101	MOV. 0103
2		1						
3					•			
4								
5								
6								
7								
8		en ugugugadan						

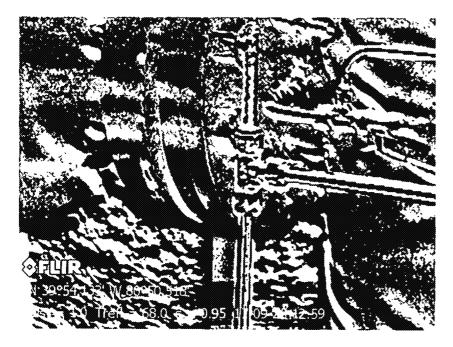
# **Initial Site Photo**



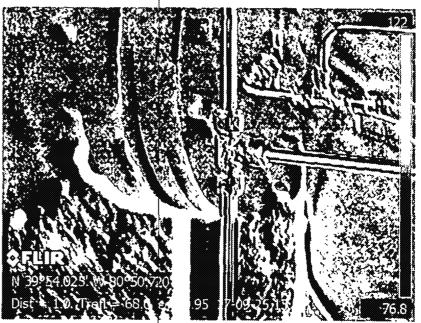
# **Camera Verification Photo**



# Filter Separator Supply Line Leak



Filter Separator Supply Line Repair



October 25, 2017

Ohio Environmental Protection Agency Division of Air Pollution Control Southeast District Office 2195 Front Street Logan, OH 43138

Re:

Strike Force South, LLC

**NSPS Subpart OOOOa Annual Report** 

To whom it may concern:

Strike Force South, LLC (SFS) is submitting the attached report for NSPS Subpart OOOOa, as required by 40 CFR §60.5420a(b). This report contains the information specified in §60.5420a(b)(1), (b)(7), and (b)(8).

The report covers the period of August 2, 2016 through August 1, 2017.

Should you have any questions or comments about this submittal, please contact me at (412) 400-6887 or at kristin.ryan@riceenergy.com.

Sincerely,

Kristin Ryan

**Emissions Permitting Specialist** 

Rice Energy, Inc.

Cc:

Director, Air and Radiation Division

US Environmental Protection Agency, Region V

77 West Jackson Boulevard Chicago, IL 60604-3590

**Enclosures** 



# Strike Force South LLC NSPS Subpart OOOOa Annual Report

#### **General Information**

Company Name:

Strike Force South LLC

Address:

2200 Rice Drive

Canonsburg, PA 15317

Reporting Period					
Start Date	End Date				
8/2/2016	8/1/2017				

**Report Preparer** 

Name:

Kristin Ryan

Title:

**Emissions Permitting Coordinator** 

Phone:

412-400-6887

Email:

kristin.ryan@riceenergy.com

**Certifying Official** 

Name:

**Justin Trettel** 

Title:

VP of Midstream Operations and Engineering

Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature

ED_004016M_00016023-00252

10/25/20/7 Date

#### Rice Orilling 8, LLC NSPS Subpart OOOOa Annual Report

#### Pneumatic Pump Affected Facilities

Pneumatic Pumps Constructed, Modified, or Reconstructed During the Reporting Period; Technically intensible to Emissions from the capture and route the eumatic pump are route No control device or proces to a control device or Recards of Devistions emissions to the control is available on site DLOCG28 Decuring Divring the Number of device or sonces. West Site City County Punipi (X) {X} Reporting Period² Comments
PE certification attached Switz 5 Switz 16 45232 SR 556 OH Besilvville Beimant OH PE certification attached 51.103 Cain Ridge Clarington Beimon Donato 37921 Pleasant Ridge Road Graysville OH PE rerubcation attached Gary Green 35371 Hartshurs Ridge Road Graysville OH PE certification attached 40222 58 26 Woodsheld CM PE certification attached Lacobs 34186 Long Run Road Graysville DH HC PE certification attached Rick Ma: Uti 39420 Conner Ridge Road 38458 Pleasant Hidge Road Woodsfield Seimont PE certification attached Roger W. Brown Graysville Beimont PE certification attached Tito Sentana

Pneumatic Pumps Pn	Pneumatic Pumps Previously Reported and for Which a Change in the Reported Condition Changed During the Reporting Period:										
									Control device or process		
						I	New control device and		was removed and now	į l	1
			}	1		1	technically infeasible to	Control device or process	technically infeasible to	į '	1
				1.			capture and route the	was removed and now no	sapture and foute the		1
			1			New control device and	emissions to the control	control/process is available	emissions to seather control	Records of Deviations	:
						emissions are controlled	device	ga site	device ar process	Occuring Ouring the	1
well Site	Street Address	City	Edunty	State	Fump (O	(X)	[X]	(X)	(x)	Reporting Period ²	Eathmunts
N/4						L					

¹ If the control device is designed to achieve less than 95 percent emissions reduction, specify the percent emissions reductions the control device is designed to achieve.

As specified in 40 CFR 50.5429a(c)(18)(ii).

40 CFR Subpart OOOOa Compliance Plan - Midstream

#### Diaphragm Pumps

LOCATION

Switz 5

911 ADDRESS 48

48232 SR 556

Beallsville, OH

COUNTY

Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	July 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS Yes / No	No
CONTROCEED – Yes / No.	No
GREENFIELD SITE - yes / Wá	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
  - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
  - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
- 2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
  - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

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Phone: 724-271-7638

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Cory Harris, P.E. Environmental Engineer cory.harris@riceenergy.com

Phone: 724-271-7718

E OF OA

CORY A HARRIS E-82396



40 CFR Subpart OOOOa Compliance Plan - Midstream

#### Diaphragm Pumps

LOCATION

Switz 16

911 ADDRESS

51303 Cain Ridge

Clarington, OH

COUNTY

Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	July 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? — Yes / No	Yes – see documentation
ROUTED TO PROCESS - Yés / No	No
CONTROLLED – Yes / No. 🐍	No
GREENEELD SITE YES / No 3	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
  - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
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CORYA. HARRIS



40 CFR Subpart OOOOa Compliance Plan - Midstream

#### Diaphragm Pumps

<u>LOCATION</u>

Donato

911 ADDRESS

37921 Pleasant Ridge Road

Greysville, OH

COUNTY

Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	April 2017
APPLICATION ,	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? – Yes / No	Yes – see documentation
ROUTEĎ TO PROCESS – Yes ÆNo	No
CONTÎROLLED − Yes / No 🖫	No
GREENFIELD SITE -Yes / No	No

Comments

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
  - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
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SFS DONATO

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Phone: 724-271-7718

CORYA. HARRIS E-82398

SFS DONATO



40 CFR Subpart OOOOa Compliance Plan - Midstream

#### Diaphragm Pumps

LOCATION

Gary Green

911 ADDRESS

35371 Hartshorn Ridge Road

Greysville, OH

COUNTY

Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	May 2017
APPLICATION:	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROELED - Yếs / Nó	No
GREENFIELD SITE - ¥Yes /.No	No

Comments	14	
		 · ···

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
  - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
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SFS GARY GREEN

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Phone: 724-271-7638

Cory Harris, P.E. Environmental Engineer cory.harris@riceenergy.com

Phone: 724-271-7718

CORY A. E-82396

SFS GARY GREEN



40 CFR Subpart OOOOa Compliance Plan - Midstream

#### Diaphragm Pumps

LOCATION

Jacobs

911 ADDRESS

40222 SR 26

Woodsfield, OH

COUNTY

Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	April 2017
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED - Yes / No	No
GREENFIELD SITE - Yes / No	No

Comments	
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Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

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  - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
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SES JACOBS

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Phone: 724,271-7718

CORY A. HARRIS E-82398

10/25



40 CFR Subpart OOOOa Compliance Plan - Midstream

#### Diaphragm Pumps

**LOCATION** 

Roger W. Brown

911 ADDRESS

35420 Conner Ridge Road

Woodsfield, OH

COUNTY

Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	April 2017
APPLICATION 1997	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? — Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No 🚉	No
CONTROLLÉD – Yes / No 🚶 🗓	No
GREENFIELD SITE = Yes / No	No

Comments	•	
	 	•••••••••••••••••••••••••••••••••••••••

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
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SFS ROGER W BROWN 1

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Phone: 724,271-7718

OF OHAD

CORYA. HARRIS E-82398

SFS ROGER W BROWN



40 CFR Subpart OOOOa Compliance Plan - Midstream

#### Diaphragm Pumps

**LOCATION** 

Rick Martel

911 ADDRESS

34186 Long Run Road

Greysville, OH

COUNTY

Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	July 2016
APPLICATION .	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes /, No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED - Yes / No.	No
GREENFIELD SITE - Yes / No :	No

Comments	·	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
  - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
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SFS RICK MARTEL

1

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CORYA HARRIS E-82396

SFS RICK MARTEL



40 CFR Subpart OOOOa Compliance Plan - Midstream

#### Diaphragm Pumps

LOCATION

Tito Santana

911 ADDRESS

38458 Pleasant Ridge Road

Greysville, OH

COUNTY

Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	February 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED - Yes / No	No
GREENFIELD-SITE - Yes / No	No

Comments	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

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SFS TITO SANTANA

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Phone: 724-271-7718

E-82396

CORY A.

SFS TITO SANTANA

# Strike Force South LLC NSPS Subpart OOOOa Annual Report

## **Fugitive Components at Well Sites**

					Date(s) of Monitoring
Well Site	Street Address_	City	County	State	Surveys
Switz 5	48232 SR 556	Beallsville	Belmont	ОН	9/25/2017
Switz 16	51303 Cain Ridge	Clarington	Belmont	ОН	9/25/2017
Donato	38458 Pleasant Ridge Road	Graysville	Belmont	ОН	9/27/2017
Gary Green	35371 Hartshorn Ridge Road	Graysville	Belmont	ОН	9/27/2017
Jacobs	40222 SR 26	Woodsfield	Belmont	ОН	9/27/2017
Rick Martel	34186 Long Run Road	Graysville	Belmont	ОН	9/27/2017
Roger W. Brown	35420 Conner Ridge Road	Woodsfield	Belmont	ОН	9/27/2017
Tito Santana	38458 Pleasant Ridge Road	Graysville	Belmont	ОН	9/27/2017



STATION	SWITZ		5			
ON-SITE CONTACT	SHANE	no	IRRAY			
DATE TESTED	9:25-17	START	TIME	11:00	END TIME	11:25 A
SKY CONDITIONS	CLEAR	AMBIE	NTTEMP	750	WIND SPEED	2 MPH
CAMERA MODEL		***************************************	GFX 320	-		
CAMERA ID NUMBER			SN 7490010	)2		
CAMERA CERTIFICA	TION DATE		2/27/2017			
DAILY VERIFICATION	DATE		9-25-	77		
MAXIMUM VIEWING	DISTANCE		25 feet		,	
MONITORING COMPA	LNY		RICE POSE	IDON MIDSTI	REAM	
MONITORING TECHN	ICIAN		JOHN ROW	'E		
TECHNICIAN CERTIFI	ED? (Y/N)		YES			· · · · · · · · · · · · · · · · · · ·
TECHNICIAN YEARS	OF EXPERIEN	CE	3 mo	NAS		
	LEAKS DETEC	TED (A	tach additio	onal sheets if	necessary)	
Location Description	Date Detected	Dat Repai		mera Model ID for Resca	, Description	ve Action on <u>For Each</u> empt
1						
2		· ·		- W.		
3				,		
4		·				
5			1			
6						
NUMBER OF COMPO	NENTS NOT RE	EPAIRE	DURING II	NITIAL SCAN	(#)	
ALL UNREPAIRED CO	MPONENTS H	AVE BE	EN TAGGE	D (<)	NIA	7
NUMBER OF DIFFICU	LT-TO-MONITO	OR COM	PONENTS S	SCANNED (#)	0	
NUMBER OF UNSAFE	-TO-MONITOR	COMPO	ONENTS SC	ANNED (#)	0	



AT LEAST ONE STILL IMAGE IS ATTACHED (1)	
ALL STILL IMAGES ARE DATED AND GIS ENABLED (*)	
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	MA
REPAIR STILL IMAGES ARE ATTACHED ( or N/A)	NA
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (<)	
DELAY OF REPAIR FORMS COMPLETE ( or N/A)	NA
*if either plan or nath were not followed, please include a written description and avalan	eating with this form

#### ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{^{ak} \times 100\%}{Count_{Est}}$ 

	***************************************		 	 **********	~~~~	·
LEAKER COUNT		1				
······································	***************************************		 	 		
ESTIMATED COMPONENT	COUNT*					)
						3
	33,110		 	 		
LEAK PERCENT**			 	 		
			 	 		,

Signature

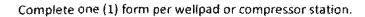
Date

ED_004016M_00016023-00272

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

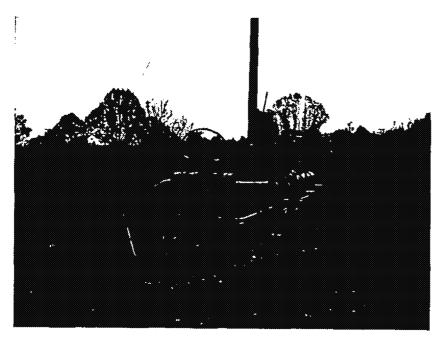
# **LDAR Image Title Form**



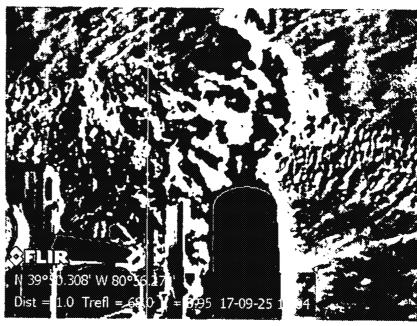


LOCATION		W172	#5	INITIAL SITE PHOTO	DC _ 00/
TECHNICIA	۷	DHN )	ROWE	CAMERA VERIFICATIO	N' IR_∞90
DATE TESTI	ED 9	-25-a	017		
***************************************			·	T	
SD Card #	SANO	15h 80	SB DH	PI	
Leak	Date	LR	Digital	IR Picture	IR Movie
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3					
	•		, a		
4 -					1
	•••••	-			
5					
6					
7					

Initial Site Photo



Camera Verification Photo





	•				KINE // EN	ieko i
STATION	501172	3/	6	· · · · · · · · · · · · · · · · · · ·		
ON-SITE CONTACT	SHANE		PURK	197	•	
DATE TESTED	8-25-17	START	**	11-35	END TIME	12:05 A
SKY CONDITIONS	CLEAR	AMBIEI	NT TEMP	76°	WIND SPEED	3 MPH
CAMERA MODEL			GFX 320	4.38		
CAMERA ID NUMBER	na aa maadhanna aayaa agaanna garaa agaanna gagaannayaa aa b		SN 7490010	2		
CAMERA CERTIFICAT	TION DATE		2/27/2017		•	<u></u>
DAILY VERIFICATION	DATE		9-2	5-2017	7	**************************************
MAXIMUM VIEWING D	DISTANCE	***************************************	25 feet			
MONITORING COMPA	MY		RICE POSE	DON MIDSTRI	EAM	
MONITORING TECHN	ICIAN		JOHN ROW	E		
TECHNICIAN CERTIFI	ED? (Y/N)		YES			······································
TECHNICIAN YEARS	OF EXPERIENC)E	3 mo	VDIS		
	LEAKS DETEC	TED (At	tach additio	nal sheets if r	ecessary)	
Location Description	Date Detected	Date Repai	red and	mera Model ID for Rescan	Descriptio Atte	ve Action n <u>For Each</u> empt
1 REGERATED SEP.	9-25-17	9-26	-17 sv	74900102	RESCHOTEN	BACK PALSON REMASURT
3						
4						
5						
6						
NUMBER OF COMPO	NENTS NOT RI	EPAIRED	DURING II	NITIAL SCAN (#) /	
ALL UNREPAIRED CO	MPONENTS H	AVE BE	EN TAGGE	D (<')	V	
NUMBER OF DIFFICU	LT-TO-MONITO	OR COMI	PONENTS S	CANNED (#)	2)

NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)

	ENERGY	
RICE	ENERGY	r

AT LEAST ONE STILL IMAGE IS ATTACHED (</th <th></th>	
ALL STILL IMAGES ARE DATED AND GIS ENABLED (V)	
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	
DELAY OF REPAIR FORMS COMPLETE (or N/A)	MA

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{ak \times 100\%}{Count_{Est}}$

LEAKER COUNT	
ESTIMATED COMPONENT COUNT*	
LEAK PERCENT**	

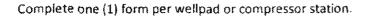
^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

Signature⁶

Data

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

LDAR Image Title Form



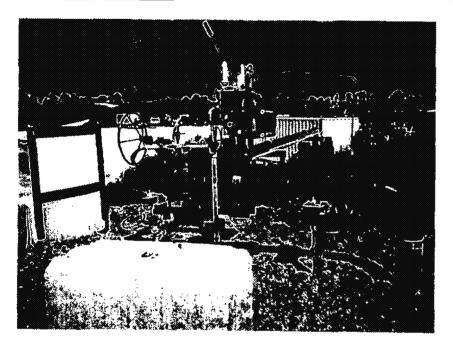


LOCATION	80172 16	INITIAL SITE PHOTO	DC_0091
TECHNICIAN	JOHN ROWE	CAMERA VERIFICATION PHOTO	IR_ 0092
DATE TESTED	9-25-2017		

-	^		41-1	2/10	50°222m	White of
อบ	Caro #	SOWE	11512_8	65	0010	,,,,,
·		A	***************************************	~~~~~~~~~~~		

Leak	Date	L R	Digital	IR Picture	IR Movie
1	9-25-2017	_	DC_0093	IR_0094	MOV_0095
	9-26-2017	R	DC_0093 DC_0116	IR_0117	MOV_0118
2		<u> </u>			
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4					
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7					
8		<u>i</u>			

Initial Site Photo



Camera Verification Photo



Flash Separator Back Pressure Regulator Leak



Flash Separator Back Pressure Regulator Repair





STATION	DONATO		****	** ***********************************	· · · · · · · · · · · · · · · · · · ·	
ON-SITE CONTACT	BRIAN		STERS)		- ········
DATE TESTED	9-27-17	START			END TIME	,
SKY CONDITIONS	CLEAR	AMBIEN	VT TEMP	81°	WIND SPEED	3 man
CAMERA MODEL	Art, Arter - Capagagaga (Arter Capagaga)		GFX 320	A MARAGES		
CAMERA ID NUMBER	?		SN 7490010	12		
CAMERA CERTIFICA	TION DATE	***************************************	2/27/2017			
DAILY VERIFICATION	DATE		9-27-	2017		4* 6000000 0000017 9999999 9, Uncorr
MAXIMUM VIEWING I	DISTANCE		25 feet			······································
MONITORING COMP	ANY		RICE POSE	IDON MIDSTRI	EAM	
MONITORING TECHN			JOHN ROW	Æ		
TECHNICIAN CERTIF			YES			· · · · · · · · · · · · · · · · · · ·
TECHNICIAN YEARS		CE	7	NTH'S		\(\text{\tince{\text{\text{\text{\text{\text{\text{\text{\text{\text{\texi{\text{\texi{\text{\tin}\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tin\text{\tin}\\ \ti}\\\ \tinttitex{\text{\text{\text{\text{\text{\text{\ti}\titt{\text{\texi}\tittitt{\text{\texi}\tint{\tin}\tint{\text{\ti}\tittt{\text{\texi}\tittt{\tinithtt{\text{\texitilex{\tii}
					- % - 1	***************************************
	LEAKS DETEC			and a community of the second		ve Action
Location Description	Date Detected	Date Repair	4	imera Model ID for Rescan	Description For Each	
1						- Annual Control of the Control of t
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3	ž					
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5						
6						
NUMBER OF COMPO	NENTS NOT RE	EPAIRED	DURING I	NITIAL SCAN (#) ()	
ALL UNREPAIRED CO	OMPONENTS H	IAVE BE	EN TAGGE	D (<)	N/A	
NUMBER OF DIFFICU	ILT-TO-MONITO	OR COMP	ONENTS	SCANNED (#)	7	
NUMBER OF UNSAFE	E-TO-MONITOR	COMPO	NENTS SC	ANNED (#)	TĀ	



AT LEAST ONE STILL IMAGE IS ATTACHED (1)	
ALL STILL IMAGES ARE DATED AND GIS ENABLED (🗸)	
LEAKER STILL IMAGES ARE ATTACHED (or N/A)	WA
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	MA
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (*)	
DELAY OF REPAIR FORMS COMPLETE (or N/A)	NA
*If either plan or path were not followed, please include a written description and explain	nation with this form

 $Leak\% = \frac{^{ak} \times 100\%}{Count_{Est}}$

LEAKER COUNT	N/A - Only applicable for OH GP12.1 permits
ESTIMATED COMPONENT COUNT*	N/A - Only applicable for OH GP12.1 permits
LEAK PERCENT**	N/A - Only applicable for OH GP12.1 permits

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

Signature

Date

ADDITIONAL OHIO CALCULATION:

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

LDAR Image Title Form

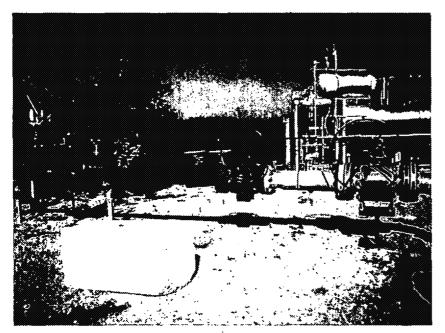




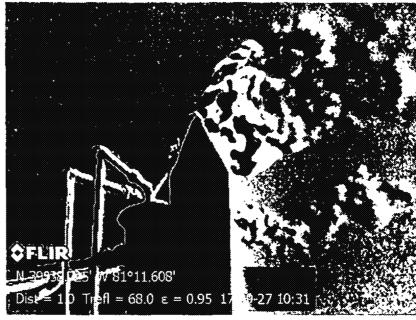
LOCATION	DON	ATO	11	NITIAL SITE PHOTO	a	0150
TECHNICIAN	304	N RO	CA CA	MERA VERIFICATION PHOTO	D.	0151
DATE TESTED	9-2	7-201	7			
SD Card #	CAMICH	R GR	ON M	* 1		

Date	L R	Digital	IR Picture	IR Movie
······································				
				v , a
and the decession				
	Date	Date L R	Date L R Digital	

Initial Site Photo



Camera Verification Photo





STATION	GARY G	GREEN.	•				
ON-SITE CONTACT	BRIAN	LEMASTE	5CS				
DATE TESTED	9-27-17	START TIME		11:55 AM	END TIME	12:20 AM	
SKY CONDITIONS	CLEAR	AMBIENT TE	MP	840	WIND SPEED	12:20 AN	
CAMERA MODEL		GFX	320				
CAMERA ID NUMBER	t	SN 74	190010	2			
CAMERA CERTIFICA	TION DATE	2/27/	2017	·····			
DAILY VERIFICATION	IDATE	9-	27	2017			
MAXIMUM VIEWING	DISTANCE	25 fee				W IN MACHINESIA TOTAL TO	
MONITORING COMPA	LNY	RICE	POSE	DON MIDSTRI	EAM		
MONITORING TECHN	***************************************	JOHN	ROW	E			
TECHNICIAN CERTIF		YES	YES				
TECHNICIAN YEARS	***************************************	CE 3		41~1°			
				NTHS			
	LEAKS DETEC	TED (Attach a	ıdditic	nal sheets if i			
Location Description	Date Detected	Date Repaired			Descriptio	ve Action n <u>For Each</u> empt	
1			***************************************				
2							
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6							
NUMBER OF COMPO	NENTS NOT RE	EPAIRED DUR	ING II	VITIAL SCAN ((#))	
ALL UNREPAIRED CO	MPONENTS H	AVE BEEN TA	\GGEI) (✓)	NI	4	
NUMBER OF DIFFICU	LT-TO-MONITO	OR COMPONE	NTS S	CANNED (#)	10		
NUMBER OF UNSAFE	-TO-MONITOR	COMPONENT	rs sc	ANNED (#)	7)		



AT LEAST ONE STILL IMAGE IS ATTACHED (V)	
ALL STILL IMAGES ARE DATED AND GIS ENABLED (<)	
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	N/A
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	NA
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	
DELAY OF REPAIR FORMS COMPLETE (or N/A)	NA
*If either plan or path were not followed, please include a written description and explan	ation with this form.

 $Leak\% = \frac{^{ak} \times 100\%}{Count_{Est}}$

LEAKER COUNT

ESTIMATED COMPONENT COUNT*

LEAK PERCENT**

Signature

ED_004016M_00016023-00285

ADDITIONAL OHIO CALCULATION:

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

LDAR Image Title Form

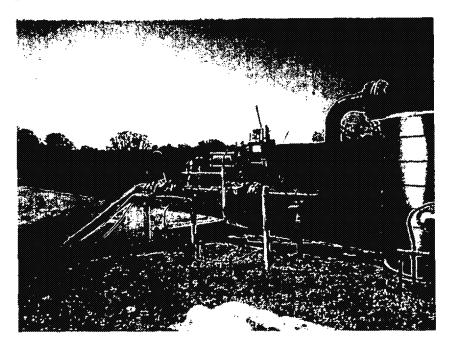




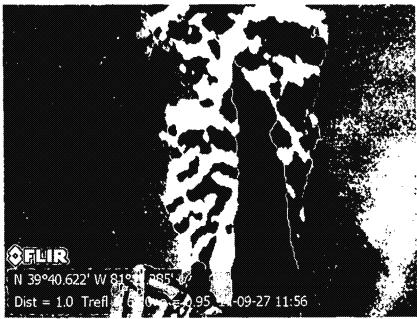
LOCATION	GARY GREEN	INITIAL SITE PHOTO	DC_	0161
TECHNICIAN	SOUN ROWE	CAMERA VERIFICATION PHOTO	IR_	0160
DATE TESTED	9-27-2017			

Leak	Date	L R	Digital	IR Picture	IR Movie
1		-			
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8					
ı		\$			

Initial Site Photo



Camera Verification Photo





ST	ATION	JACOB	?5	_			-
01	I-SITE CONTACT	BRIAN ,	KEMA	STER	5		
DA	TE TESTED	9-27-17	START		11:10 AM	END TIME	11:35 AM
SK	SKY CONDITIONS CLEAR AMB		AMBIEI	NT TEMP	820	WIND SPEED	3 MPH
CA	MERA MODEL		***************************************	GFX 320			
CA	MERA ID NUMBER	₹	THE PROPERTY AND THE PR	SN 749001	02		
CA	MERA CERTIFICA	TION DATE		2/27/2017			
DA	ILY VERIFICATION	N DATE		9-27	12017		
 M⊅	XIMUM VIEWING I	DISTANCE	***************************************	25 feet		and the same of th	
MC	NITORING COMP	ANY		RICE POSI	EIDON MIDSTRI	EAM	
	NITORING TECHN	······································		JOHN ROY	WE -		
TE	CHNICIAN CERTIF	IED? (Y/N)		YES			
TE	CHNICIAN YEARS	OF EXPERIEN	CE	3 m	ONTHS		
`		1 F & 1/0 DFTF/				***************************************	
					ional sheets if n		ve Action
Lo	cation Description	Date Detected	Date Repair	§	amera Model I ID for Rescan	Descriptio	on <u>For Each</u> empt
1	FUEL SUPPLY	9-22-17	9:27-	17 OF	74900102	RE-TAPED & 7	SONTENED PLU
2							
3							
4							
5				- value deliver	***************************************		
6							
NU	MBER OF COMPO	NENTS NOT RI	EPAIRED	DURING	INITIAL SCAN (#))
AL	L UNREPAIRED CO	OMPONENTS H	IAVE BEI	EN TAGG	ED (✓)	NI	4
NU	MBER OF DIFFICU	LT-TO-MONITO	OR COM	PONENTS	SCANNED (#)	10	-
NU	MBER OF UNSAFE	-TO-MONITOR	COMPO	NENTS S	CANNED (#)	\top	



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	
LEAKER STILL IMAGES ARE ATTACHED (or N/A)	V
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	1
DELAY OF REPAIR FORMS COMPLETE (or N/A)	NIA
*If either plan or path were not followed, please include a written description and expl	anation with this form.

ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{a^k \times 100\%}{Count_{Est}}$

LEAKER COUNT	N/A - Only applicable to OH GP12.1 permits
ESTIMATED COMPONENT COUNT*	N/A - Only applicable to OH GP12.1 permits
LEAK PERCENT**	N/A - Only applicable to OH GP12.1 permits

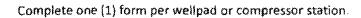
^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

Signature: 12. Low Date: 9-21-2017

ED_004016M_00016023-00289

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

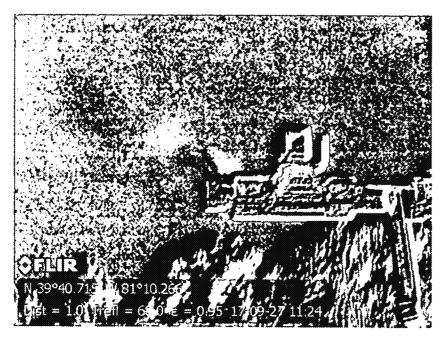
LDAR Image Title Form



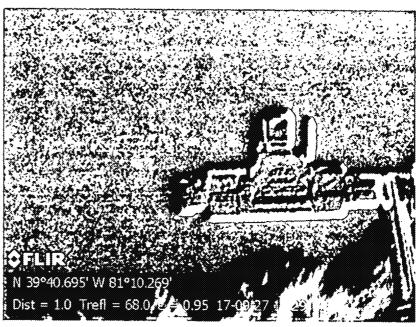


LOCATIO)N	JACO	785	INITIAL SITE	Е РНОТО	DC_	0152
TECHNIC	IAN	JOHN.		CAMERA VER			0/53
DATE TE	STED	9-27-	2017			\(\)	
SD Card	# SAN	rask 8	'68 DH	W#1			
Leak	Date	LR	Digita	I IR P	icture i	IR	Movie
1	9-27-2		DC_01	54 IR_	_0 55 _0 58	•	
2			00, 01.			/	
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4	<u></u>						
5							
6	l						
7							
8	 						

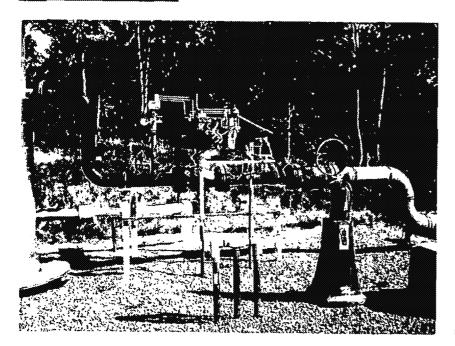
Fuel Supply Bleed Valve Plug Leak



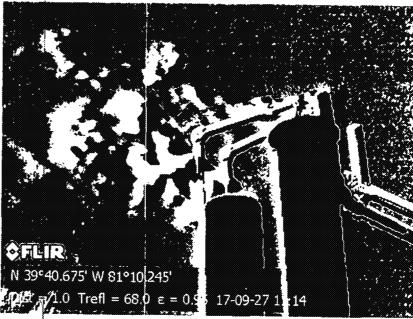
Fuel Supply Bleed Valve Plug Repair



Initial Site Photo



Camera Verification Photo





STATION	RICK	MARTE	7			
ON-SITE CONTACT	BRIAN					
DATE TESTED	9-27-17			9:10 AM	END TIME	9:35 PM
SKY CONDITIONS	CLEAR	AMBIENT T	EMP	740	WIND SPEED	3 MM
CAMERA MODEL	••••	GFX	320			
CAMERA ID NUMBER		SN	490010)2		······································
CAMERA CERTIFICA	TION DATE	2/27	7/2017		***************************************	<u> </u>
DAILY VERIFICATION	DATE	9	-27	12017		**************************************
MAXIMUM VIEWING D	STANCE	25 fe	et		~ <u>~ - ~~</u>	w
MONITORING COMPA	\NY	RICI	E POSE	IDON MIDSTRE	EAM	
MONITORING TECHN	 ICIAN	юн	N ROW	E		
TECHNICIAN CERTIFI	ED? (Y/N)	YES				
TECHNICIAN YEARS	OF EXPERIENCE	E	 2 m	ONOH'S		A
	LEAKS DETEC					**************************************
Location Description	Date	Date	Ca	mera Model	Correctiv	ve Action n <i>For Each</i>
	Detected	Repaired	and	ID for Rescan		mpt
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2	-		· ·			······································
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4	***************************************		<u> </u>			
5 ′			ļ			
6				······································		
NUMBER OF COMPON	NENTS NOT RE	PAIRED DU	RING II	NITIAL SCAN (#) 0	
ALL UNREPAIRED CO	MPONENTS H	AVE BEEN T	AGGE	D (<)	NIA	
NUMBER OF DIFFICUI	LT-TO-MONITO	R COMPON	ENTS S	CANNED (#)	6	
NUMBER OF UNSAFE	-TO-MONITOR	COMPONEN	ITS SC	ANNED (#)	0	



AT LEAST ONE STILL IMAGE IS ATTACHED (V)	
ALL STILL IMAGES ARE DATED AND GIS ENABLED (*)	
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	NA
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	NA
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (*)	
DELAY OF REPAIR FORMS COMPLETE (or N/A)	NA
*If either plan or path were not followed, please include a written description and explana	ation with this form.

ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{ak \times 100\%}{Count_{Est}}$

LEAKER COUNT	N/A - Only applicable to OH GP12.1 permits
ESTIMATED COMPONENT COUNT*	N/A - Only applicable to OH GP12.1 permits
LEAK PERCENT**	N/Λ - Only applicable to OH GP12.1 permits

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors

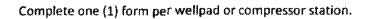
Signatur (

Nate

ED_004016M_00016023-00294

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

LDAR Image Title Form





LOCATION	RICK MARTEL	INITIAL SITE PHOTO	DC_0141
TECHNICIAN	JOHN LOWE	CAMERA VERIFICATION PHOTO	IR_0140
DATE TESTED	9-27-2017		

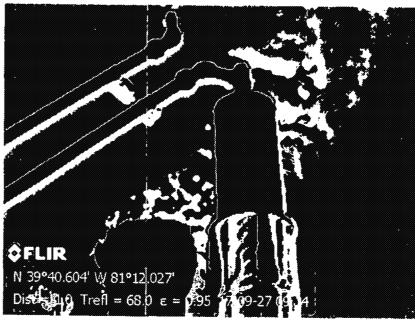
**************************************	~- ~~~	
		0071
SD Card # //	IMMICH / KER	C(M/N)
.24	σ	01110

Leak	Date	L R	Digital	IR Picture	IR Movie
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6					
7					
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8					

Initial Site Photo



Camera Verification Photo





STATION	ROGER	W. BROW	W		
ON-SITE CONTACT		LEMBSTER		<u>.</u>	***************************************
DATE TESTED	9-27-17	START TIME	12:30 PM	END TIME	1:00 FM
SKY CONDITIONS	CLEOR	AMBIENT TEN	-20	WIND SPEED	1:00 FM 3 MF4
CAMERA MODEL		GFX 3	20		
CAMERA ID NUMBER	₹	SN 749	000102		ant angeles accuments successive.
CAMERA CERTIFICA	TION DATE	2/27/2	017		
DAILY VERIFICATION	DATE	9-0	マクーノフ	~	
MAXIMUM VIEWING	DISTANCE	25 feet			Annual arrangement annual annu
MONITORING COMPA	ANY	RICE P	OSEIDON MIDSTR	EAM	
MONITORING TECHN		JOHN	ROWE		
TECHNICIAN CERTIF	······································	YES			
TECHNICIAN YEARS	······································	CF 2			water and a second seco
1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			nouths		
	LEAKS DETEC	TED (Attach ac	Iditional sheets if		
Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Descriptio	ve Action on <u>For Each</u> empt
1					
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5					1
6					}
NUMBER OF COMPO	NENTS NOT RI	EPAIRED DURII	NG INITIAL SCAN	(#) C	
ALL UNREPAIRED CO	MPONENTS H	AVE BEEN TAG	GGED (√)	11	4
NUMBER OF DIFFICU	LT-TO-MONITO	OR COMPONEN	TS SCANNED (#)	(2	
NUMBER OF UNSAFE	-TO-MONITOR	COMPONENTS	S SCANNED (#)	7	



AT LEAST ONE STILL IMAGE IS ATTACHED (/)	
ALL STILL IMAGES ARE DATED AND GIS ENABLED ()	
LEAKER STILL IMAGES ARE ATTACHED (or N/A)	NB
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	NA
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (</td <td>V,</td>	V,
DELAY OF REPAIR FORMS COMPLETE (or N/A)	NB
*if gither also as eath was not followed, place include a written description and audi	nation Lieb this Faces

ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{^{ak} \times 100\%}{Count_{Est}}$

ESTIMATED COMPONENT COUNT*

LEAK PERCENT**

LEAKER COUNT

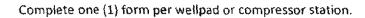
Signature

Date

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly

LDAR Image Title Form



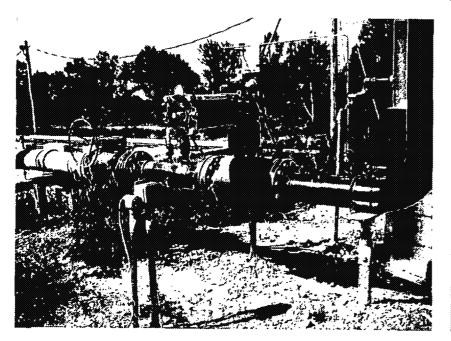


LOCATION	ROSER W. BROWN	INITIAL SITE PHOTO	DC _ 0167
TECHNICIAN	JOHN ROWE	CAMERA VERIFICATION PHOTO	IR_ 0163
DATE TESTED	19-27-2017		

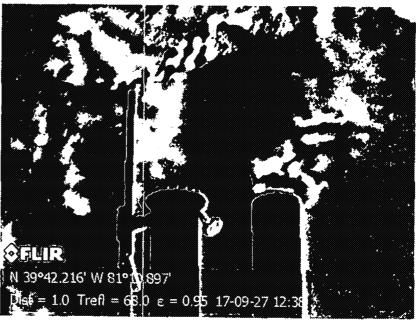
SD Card# SANOISE 8GB OHIO# 2

Leak	Date	L	R	Digital	IR Picture	IR Movie
· 1		<u> </u>				
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	•	-				
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7						
8						

Initial Site Photo



Camera Verification Photo





	****		***************************************	······································			
STATION	TITO	SAN	TANI	9			
ON-SITE CONTACT	BRIAN			5/815			
DATE TESTED	9-37-17	START	·····	9:45	END TIME	10:30	
SKY CONDITIONS	CHEAR	AMBIE	NT TEMP	770	WIND SPEED	3 mA	
CAMERA MODEL			GFX 320				
CAMERA ID NUMBER			SN 749001	02			
CAMERA CERTIFICA	TION DATE	•	2/27/2017	•••••			
DAILY VERIFICATION	DATE		9-27	-2017	······································		
MAXIMUM VIEWING	DISTANCE		25 feet	<u> </u>		- A Thirties of the Control of the C	
MONITORING COMPA	INY		RICE POS	EIDON MIDSTR	EAM		
MONITORING TECHN			JOHN ROT	VE		······································	
TECHNICIAN CERTIFI			YES				
TECHNICIAN YEARS		ICE	2	1. n. 1. c		The second secon	
			0 1130	WTH'S			
LEAKS DETECTED (Attach additional sheets if necessary) Corrective Action							
Location Description	Date Detected	Dat Repai	1	amera Model I ID for Rescan	Descriptio	ve Action n <u>For Each</u> empt	
WHET FILTER	8-27-17	8.77	1.00	X 320 24900103	RE-MED P	200 F	
2			7 *	nn at the same of a same fire the same fire			
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NUMBER OF COMPON	VENTS NOT R	EPAIRED	DURING	INITIAL SCAN	(#) (7))	
ALL UNREPAIRED CO			······································		1/14		
NUMBER OF DIFFICU	······································		Y				
	-TO-MONITOR						



AT LEAST ONE STILL IMAGE IS ATTACHED (V)	
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	V ,
LEAKER STILL IMAGES ARE ATTACHED (or N/A)	
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (<)	
DELAY OF REPAIR FORMS COMPLETE (or N/A)	NA
*If either plan or path were not followed, please include a written description and explan	nation with this form.

ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{^{ak} \times 100\%}{Count_{Est}}$

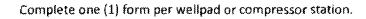
LEAKER COUNT	N/A - Only applicable to OH GP12.1 permits
ESTIMATED COMPONENT COUNT*	N/A - Only applicable to OH GP12.1 permits
LEAK PERCENT**	N/A - Only applicable to OH GP12.1 permits

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

___Date: <u>9-27-20/7</u>

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

LDAR Image Title Form

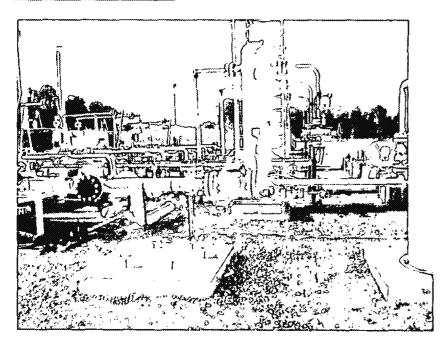




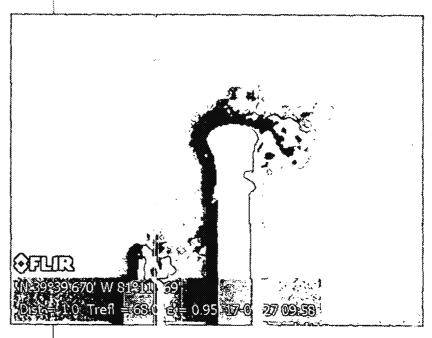
LOCATION	TITO SANTANA	INITIAL SITE PHOTO	DC_	0143
TECHNICIAN	JOHN ROWE	CAMERA VERIFICATION PHOTO	IR_	0142
DATE TESTED	9-27-2017			•
		} • ## .		
SD Card# 5/	GNOISH 868 OHI	0 1		

Leak	Date	L	R	Di	gital	IR P	icture	IRN	/lovie
1	9-27-2017	4		DC.	0144	IR_	0145	mov_	0146
	9-27-2017	IZ				3		MOV_	
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8		<u> </u>							

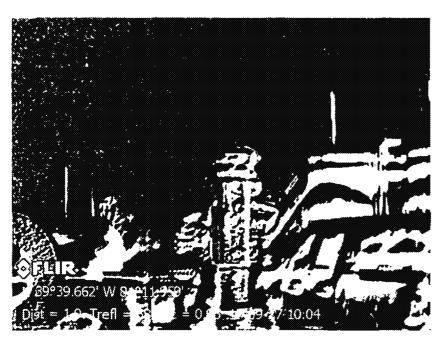
Initial Site Photo



Camera Verification Photo



Inlet Filter Separator Bleed Valve Leak



Inlet Filter Separator Bleed Valve Repair



October 25, 2017

Ohio Environmental Protection Agency Division of Air Pollution Control Southeast District Office 2195 Front Street Logan, OH 43138

Re:

Rice Olympus Midstream, LLC

NSPS Subpart OOOOa Annual Report

To whom it may concern:

Rice Olympus Midstream, LLC (Rice) is submitting the attached report for NSPS Subpart OOOOa, as required by 40 CFR §60.5420a(b). This report contains the information specified in §60.5420a(b)(1), (b)(4), (b)(7), and (b)(8).

The report covers the period of August 2, 2016 through August 1, 2017.

Should you have any questions or comments about this submittal, please contact me at (412) 400-6887 or at kristin.ryan@riceenergy.com.

Sincerely,

Kristin Ryan

Emissions Permitting Specialist

Rice Energy, Inc.

Cc:

Director, Air and Radiation Division

US Environmental Protection Agency, Region V

77 West Jackson Boulevard

Chicago, IL 60604-3590

Enclosures



Rice Olympus Midstream LLC NSPS Subpart OOOOa Annual Report

General Information

Company Name:

Rice Olympus Midstream LLC

Address:

2200 Rice Drive

Canonsburg, PA 15317

Reportir	ng Period
Start Date	End Date
8/2/2016	8/1/2017

Report Preparer

Name:

Kristin Ryan

Title:

Emissions Permitting Coordinator

Phone:

412-400-6887

Email:

kristin.ryan@riceenergy.com

Certifying Official

Name:

Justin Trettel

Title:

VP of Midstream Operations and Engineering

Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature

10/25/2017 Date

Rice Olympus Midstream LLC NSPS Subpart OOOOa Annual Report

Reciprocating Compressor Affected Facilities

Compressor	info		Location Info							Cumplative Runtime		
								Runtima Hours as of	Runtime Hours as of	Hours Since Startup or	Records of Deviations	}
1	Ì		1	l	1		Last Rod Packing	Last Rod Packing	End of Reporting	Last Rod Packing	Occurring Ouring the	
Location	Unit ID	Street Address	City	County	State	Initial Startup	Replacement	Replacement	Period	Replacement	Reporting Period ¹	Comments
Goliath CS	C-306	48234 SR 556	Bealtsville	Montpe	ОН	3/16/2016	N/A	N/A	11492	11492	N/A	
Goliath CS	C-307	48234 SR 556	Beallsville	Manroe	OH	3/16/2016	N/A	N/A	11574	11574	N/A	
Galieth CS	C-308	48734 SR 556	Beallsville	Monroe	ОН	3/16/2016	N/A	N/A	11543	11543	N/A	

¹ As specified in 40 CFR 60.5420a(c)(3)(iii).

Noe Drilling B, LLC

A C. P	MSPS Subpart GOODs Annual Report	Pntumatic Pump Affected Facilities
	8 Sb S W	mand

į		i			Murricher of	No comprof device or process is evaliable on site	SCHWILLING INTEGRATES SO Reprise and cours the emissions to the carprol device of process	processes of parties o	Records at Deviscons Occuring Dering the		
Conserve	SGRIT Saffell Church Rd	Allectoria	Seimoni	S TO	rients.	8	×	K	Reporting Person	Pf certification ettached	
George	Secily Pleasant Ridge Rd	Aßecionia		Ŧ.	3		×			Pf certification attached	
Bempsen	55471 Pugh Ridge Rd	Aledonia		ž			×			PE cerufication stracted	
#15 FB 78	Street & delivers	ŧ	A	j	ci sun4	Mass control device and emissions are controlled	Mere control denics and technically infeasible to replace and roubs the embalance to the coetical denics	Cast of device or process section device or process section device or process section-well was reconceed device or process section-well was now now capture and from the control of the co	Congrol device or process was removed and now technically indeasible to capture and notes the emissions to another control device or process int	Rescorts of Designations Occurring Design by Reserving Basical	Connections
N/A									7,		



2200 Rice Drive Canonsburg, PA 15317 40 CFR Subpart OOOOa Compliance Plan - Midstream

Diaphragm Pumps

LOCATION

Thompson

911 ADDRESS

55471 Pugh Ridge Road

Alledonia, OH

COUNTY

Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON:	July 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED # Yes / No	No
GREENFIELD SITE – Yes / No	No

Comments	·	·
	• '	

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
 - a. Varying levels of exhaust gas depending on ΔP, length of stainless tubing run, etc. w/o controls can cause erratic burner operation and can be counterproductive to installed Burner Management Systems (BMS). There is no control mechanism for exhaust gas and this type of installation is not recommended while utilizing the standard *Profire* 2100 BMS.
 - b. Back-pressure on the diaphragm pump exhaust (~8-20 psig) can cause erratic stroke rate as the exhaust is configured to atmospheric conditions.
- 2. Backflash potential and flame propagation if oxygen is present in stainless steel tubing line
 - a. No flame arrestor is currently installed to prevent backflash. Adding a flame arrestor in this application would result in varying degrees of backpressure continuously being held on the system. Also, a blockage could occur if exhaust system to burner is not properly maintained, resulting in erratic pump operation and excessive wear on internals, pump malfunction, or fire exposure.

ROM THOMPSON

"I certify that the assessment of technical infeasibility was prepared under my direction or supervision. I further certify that the assessment was conducted and this report was prepared pursuant to the requirements of §60.5393a(b)(5)(iii). Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false information."

Cody Baker Facilities Project Engineer cody.baker@riceenergy.com Phone: 724-271-7638

Conty Baker

Cory Harris, P.E. Environmental Engineer cory.harris@riceenergy.com

Phone: 724-271-7718

HARRIS

ROM THOMPSON



2200 Rice Drive Canonsburg, PA 15317 40 CFR Subpart OOOOa Compliance Plan - Midstream

Diaphragm Pumps

LOCATION

George

911 ADDRESS

56689 Pleasant Ridge Road

Belmont, OH

COUNTY

Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	August 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS – Yes / No	No
CONTROLLED - Yes / No	No
GRÊEN FIELD SITE – Yes / No	No

~					
Co	m	m	e	nrs	ĩ

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

- 1. No control mechanism on diaphragm pump exhaust line to regen burner
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ROM GEORGE

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Cody Baker Facilities Project Engineer cody.baker@riceenergy.com

Phone: 724-271-7638

CoupBater

Cory Harris, P.E.
Environmental Engineer
cory.harris@riceenergy.com

Phone: 724-271-7718

CORYA. HARRIS E-82396

E OF O

SONAL

ROM GEORGE



2200 Rice Drive Canonsburg, PA 15317 40 CFR Subpart OOOOa Compliance Plan - Midstream

Diaphragm Pumps

LOCATION

Conway

911 ADDRESS

56313 Saffell Church Road

Belmont, OH

COUNTY

Belmont (OH)

NO. OF DIAPHRAGM PUMPS	1
INSTALLED ON	June 2016
APPLICATION	Glycol transfer pump on storage tank
IN USE FOR < 90 DAYS? - Yes / No	Yes – see documentation
ROUTED TO PROCESS - Yes / No	No
CONTROLLED - Yes / No	No
GREENFIELD SITE - Yes / No	No

Comments		
	· ·	
		 ······································

Reasons why changes are not technically feasible per 40 CFR 60.5393a(b)(5)(iii):

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ROM CONWAY

"I certify that the assessment of technical infeasibility was prepared under my direction or supervision. I further certify that the assessment was conducted and this report was prepared pursuant to the requirements of $\S60.5393a(b)(5)(iii)$. Based on my professional knowledge and experience, and inquiry of personnel involved in the assessment, the certification submitted herein is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false information."

Cody Baker
Facilities Project Engineer
cody.baker@riceenergy.com

Phone: 724-271-7638
ColyBake V

Cory Harris, P.E. Environmental Engineer cory.harris@riceenergy.com

(Bhana; ,724-271-77/18

CORY A. HARRIS E-82396

ROM CONWAY

Rice Olympus Midstream LLC NSPS Subpart OOOOa Annual Report

Fugitive Components at Compressor Stations

		***************************************			Date(s) of Monitoring
Well Site	Street Address	City	County	State	Surveys
Goliath CS	48234 SR 556	Beallsville	Monroe	ОН	9/28/2017

Fugitive Components at Well Sites

Well Site	Street Address	City	County	State	Date(s) of Monitoring Surveys
Conway	56313 Saffell Church Rd	Alledonia	Belmont	ОН	9/26/2017
George	56689 Pleasant Ridge Rd	Alledonia	Belmont	ОН	9/26/2017
Thompson	55471 Pugh Ridge Rd	Alledonia	Belmont	ОН	9/25/2017



STATION	GOLIA	TH COI	MPRESSOR	571971	ON
ON-SITE CONTACT	MATT	DECKE	R		
DATE TESTED	9-28-17	START TIME	10:15-811	END TIME	2:00 Pm
SKY CONDITIONS	CLOURY	AMBIENT TO	MP 64°	WIND SPEED	3 med
CAMERA MODEL		GFX	320		
CAMERA ID NUMBER		SN 7	4900102	***************************************	}
CAMERA CERTIFICAT	TION DATE		/2017		* *************************************
DAILY VERIFICATION	DATE	9.	28-17		
MAXIMUM VIEWING D	ISTANCE	25 fee) t		
MONITORING COMPA	NY	RICE	POSEIDON MIDSTRI	EAM	
MONITORING TECHNI	CIAN	ЛОН	VROWE		
TECHNICIAN CERTIFI	ED? (Y/N)	YES			
TECHNICIAN YEARS	OF EXPERIEN	CE 3	MONOHS		
	LEAKS DETEC	CTED (Attach :	additional sheets if r	necessary)	
Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Descriptio	ve Action n <u>For Each</u> empt
1 BY INSET YEVER	×9-28-17	9-28-17	SPX 370 SN 74900102	1/4 PLUS RE- RE-TIGHTER	THREE FTHREE
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3	-				
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5			-	1	
6					
NUMBER OF COMPON	IENTS NOT RE	EPAIRED DUR	ING INITIAL SCAN (#))
ALL UNREPAIRED CO	MPONENTS H	AVE BEEN TA	AGGED (✓)		A
NUMBER OF DIFFICUL	T-TO-MONITO	OR COMPONE	NTS SCANNED (#)	()	.,
NUMBER OF UNSAFE	TO-MONITOR	COMPONENT	TS SCANNED (#)	Ö	



AT LEAST ONE STILL IMAGE IS ATTACHED (V)	
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	V
LEAKER STILL IMAGES ARE ATTACHED (or N/A)	
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (~)	
DELAY OF REPAIR FORMS COMPLETE (or N/A)	NA

ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{ak \times 100\%}{Count_{Est}}$

LEAKER COUNT	N/A - Only applicable to OH wellpads
ESTIMATED COMPONENT COUNT*	N/A - Only applicable to OH wellpads
LEAK PERCENT**	N/A - Only applicable to OH wellpads

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

Signature

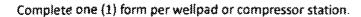
Date:

<u>9-28-20</u>

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

LDAR Image Title Form





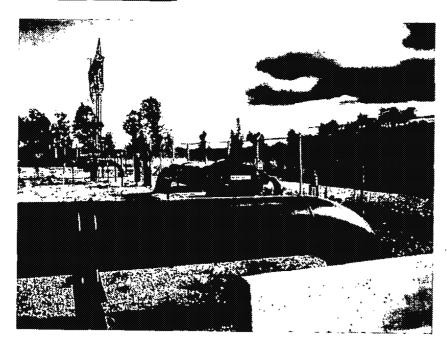
LOCATION	60L1974	INITIAL SITE PHOTO	DC_	0164
TECHNICIAN	JOHN BOWE	CAMERA VERIFICATION® PHOTO	TR_	0/65
DATE TESTED	9-28-2017		,	

SD Card# SANDISK 16 68 60L MATH

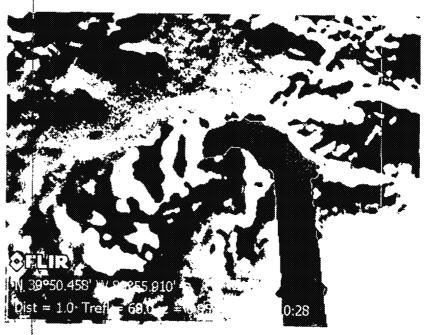
Leak	Date	L R	†	IR Picture	IR Movie
1	9-28-2017	LEAK	x-0166	TR_0167	MOV_0/68 MOV_0/72
************************	9-28-2017	REPAIR	K-0170	TR_0071	mov_0/72
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646aababaaa					
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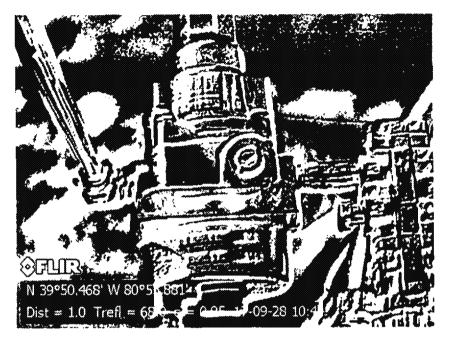
Initial Site Photo



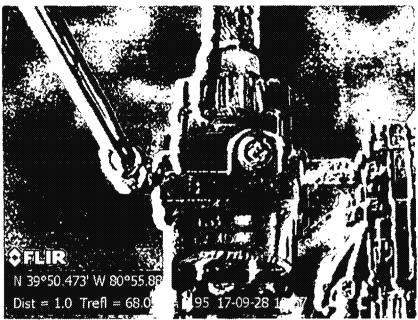
Camera Verification Photo



Inlet Scrubber Blowdown #4 Leak



Inlet Scrubber Blowdown #4 Repair





STATION	Ceru	<i>\$</i> Y						
ON-SITE CONTACT	J, C, J	OYNOU	1	•				
DATE TESTED	9-26-17		START TIME 10:25 END TIME 11:15					
SKY CONDITIONS	CLEAR	AMBIENT T	EMP	770	WIND SPEED	1 MPM		
CAMERA MODEL		GFX	320					
CAMERA ID NUMB	ER	SN 7	490010	9				
CAMERA CERTIFIC	ATION DATE	2/27	//2017		· · · · · · · · · · · · · · · · · · ·			
DAILY VERIFICATION	ON DATE	9-	26-	2017	***************************************	······································		
MAXIMUM VIEWING	G DISTANCE	25 fe	et	<i>Landin</i>				
MONITORING COM	PANY	RICI	POSEI	DON MIDSTRI	EAM	• • • • • • • • • • • • • • • • • • •		
MONITORING TECH		- Јон	N ROW	<u> </u>				
TECHNICIAN CERT	w.w. x	YES			Ø			
TECHNICIAN YEAR		CE 7		-4 (
			MOUT					
	LEAKS DETEC	TED (Attach	T			ve Action		
Location Description	on Date Detected	Date Repaired	4	mera Model D for Rescan	Descriptio	n <u>For Each</u> empt		
1 BY MUSE BUSHI	سند المواسي	9-26-17	, ,	X 320 14900182	RE-TAPED	& TIGHTEMA RUSHING		
CACAGE MA	16 9-76-17		GAX	32C 4900102	CREASED FIL			
3								
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5								
6								
NUMBER OF COMP	PONENTS NOT R	EPAIRED DU	RING IN	IITIAL SCAN (#) /			
ALL UNREPAIRED	COMPONENTS H	IAVE BEEN T	AGGE) (<)				
NUMBER OF DIFFIC	CULT-TO-MONIT	OR COMPON	ENTS S	CANNED (#)	10			
NUMBER OF UNSA		*						



AT LEAST ONE STILL IMAGE IS ATTACHED (</th <th></th>	
ALL STILL IMAGES ARE DATED AND GIS ENABLED (1)	
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	
REPAIR STILL IMAGES ARE ATTACHED (✓ or N/A)	
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (✓)	
DELAY OF REPAIR FORMS COMPLETE (or N/A)	NA

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{ak \times 100\%}{Count_{Est}}$

LEAKER COUNT	N/A - Only applicable to GP12.1 wellpads
ESTIMATED COMPONENT COUNT*	N/A - Only applicable to GP12.1 wellpads
LEAK PERCENT**	N/A - Only applicable to GP12.1 wellpads

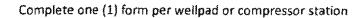
^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

Signature:

ED_004016M_00016023-00323

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

LDAR Image Title Form





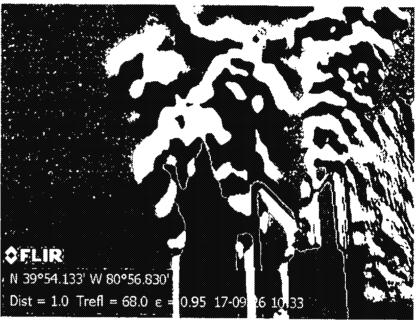
LOCATION	CONWAY	INITIAL SITE PHOTO	TY	0121
TECHNICIAN	JOHN ROWS	CAMERA VERIFICATION PHOTO	IR.	0120
DATE TESTED	9-26-2017			***************************************
		···		
SD Card #	DUNCE SON DUNC	* =		

Leak	Date	L R	Digital	IR Picture	IR Movie
1	9-26-2017			IR_0122	MOV_ 0124
	9-26-2017		DC_0131	IR_0128	MOV-0130
2	9.26.2017	<u>L</u>			MOV_0127
	10-3-2017	R	DC 0176	TR_0177	MOV_0178
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	<i>/</i>				
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Initial Site Photo



Camera Verification Photo



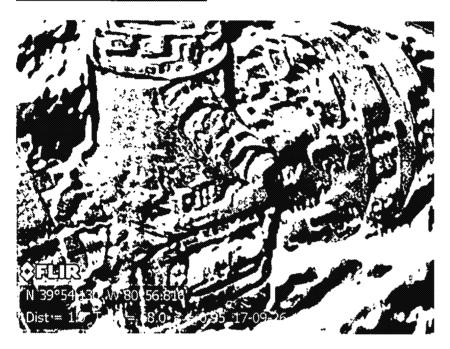
Gauge Bushing Leak



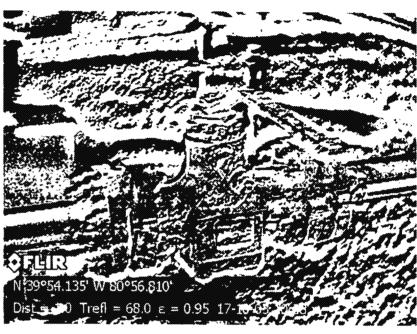
Gauge Bushing Repair



Grease Fitting Leak



Grease Fitting Repair





STA	ATION	GEOR	362	n er me e	***************************************		
ON	-SITE CONTACT	J.C. 3)OYN	 (50x/		***************************************	
DA	TE TESTED	9-26-17	START	•	11:30 Am	END TIME	11:55 1
SK'	Y CONDITIONS	CHEBR	AMBIE	NT TEMP	82	WIND SPEED	11:55 M
CA	MERA MODEL			GFX 320			
CA	MERA ID NUMBER	· ·	·	SN 749001	02	***************************************	
CA	MERA CERTIFICA	TION DATE		2/27/2017			
DAI	ILY VERIFICATION	IDATE		9-26	-2017		
MA	XIMUM VIEWING (DISTANCE	~	25 feet			
МО	NITORING COMPA	LNY		RICE POSI	EIDON MIDSTR	FAM	
MO	NITORING TECHN	ICIAN		JOHN ROV	VE		
TEC	CHNICIAN CERTIF	IED? (Y/N)		YES			
TEC	CHNICIAN YEARS	OF EXPERIEN	CE	3-m	WTHS .		
		LEAKS DETEC	CTED (At	tach addit	ional sheets if	necessary)	
Lo	ACSTION I DECEMBEION		Dat Repai	Danaminton Car Can			n <u>For Each</u>
1	·						
2							
3	···········				W		
4							
[3	ì	3			

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (/)	NA
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0



AT LEAST ONE STILL IMAGE IS ATTACHED (✓)	
ALL STILL IMAGES ARE DATED AND GIS ENABLED (✓)	
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	NA
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	J/A
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (*)	
DELAY OF REPAIR FORMS COMPLETE (or N/A)	NA

ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{^{ak} \times 100\%}{Count_{Est}}$

LEAKER COUNT	-	 	 	 		
ESTIMATED COMPONENT COUNT*		 	 	 necessaria Anixa	 	
LEAK PERCENT**			 			

^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

Signature

Date

9-36-6

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

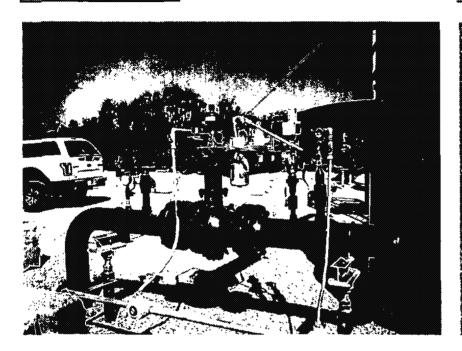
LDAR Image Title Form





LOCATIO	N	GEORGE		INITIAL SITE PHOTO	DC_0133
TECHNICIAN		JOHN A	POWE	CAMERA VERIFICATION PHOTO	IR_0132
DATE TE	2 LED	9-26-0	017		
SD Card 1	* SANO	15t 86B	OHIO	*3	
Leak	Date	L_R	Digital	IR Picture	IR Movie
1		1			
2					
3			** ***	,	
4				,	
5					
6		i			
7					
8					

Initial Site Photo



Camera Verification Photo





,			RICETENERGY				
STATION	THOMP	SON					
ON-SITE CONTACT	SHANE		RAY	***************************************			
DATE TESTED	9-25-17	START TIME	David.	END TIME	2:25		
SKY CONDITIONS	CHEBR	AMBIENT TI	MP 83°	WIND SPEED	2:25 2 MP4		
CAMERA MODEL		GFX	320				
CAMERA ID NUMBER		SN 7	4900102				
CAMERA CERTIFICA	TION DATE	2/27	/2017				
DAILY VERIFICATION	DATE	9	9-25-2017				
MAXIMUM VIEWING DISTANCE			25 feet				
MONITORING COMPA	NY	RICE	POSEIDON MIDSTR	EAM			
MONITORING TECHN	ICIAN	JOHN	JOHN ROWE				
TECHNICIAN CERTIFI	ED? (Y/N)	YES		***************************************			
TECHNIGIAN-YEARS	OF-EXPERIEN	GE-3	mourys	***************************************			
	LEAKS DETEC		additional sheets if i	necessary)			
Location Description	Date Detected	Date Repaired	Camera Model and ID for Rescan	Descriptio	ve Action n <u>For Each</u> empt		
1							
2							

Location Description	ntion Description Date Date Detected Repaired		Camera Model and ID for Rescan	Corrective Action Description <u>For Each</u> Attempt		
1						
2		***				
3		······································				
4						
5						
6						

NUMBER OF COMPONENTS NOT REPAIRED DURING INITIAL SCAN (#)	0
ALL UNREPAIRED COMPONENTS HAVE BEEN TAGGED (✓)	NA
NUMBER OF DIFFICULT-TO-MONITOR COMPONENTS SCANNED (#)	0
NUMBER OF UNSAFE-TO-MONITOR COMPONENTS SCANNED (#)	0



AT LEAST ONE STILL IMAGE IS ATTACHED (<)	
ALL STILL IMAGES ARE DATED AND GIS ENABLED (1)	
LEAKER STILL IMAGES ARE ATTACHED (✓ or N/A)	NA
REPAIR STILL IMAGES ARE ATTACHED (or N/A)	N/A
MONITORING PLAN AND OBSERVATION PATH WERE FOLLOWED* (</td <td></td>	
DELAY OF REPAIR FORMS COMPLETE (or N/A)	NA

^{*}If either plan or path were not followed, please include a written description and explanation with this form.

ADDITIONAL OHIO CALCULATION:

 $Leak\% = \frac{ak \times 100\%}{Count_{Est}}$

LEAKER COUNT	
ESTIMATED COMPONENT COUNT*	
LEAK PERCENT**	

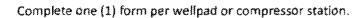
^{*}Provided by Emission Permitting Specialist or Coordinator; estimated using Subpart W population count factors.

Signatur

Date

^{**} If Leak Percent is greater than 2.0%, increase monitoring frequency to quarterly.

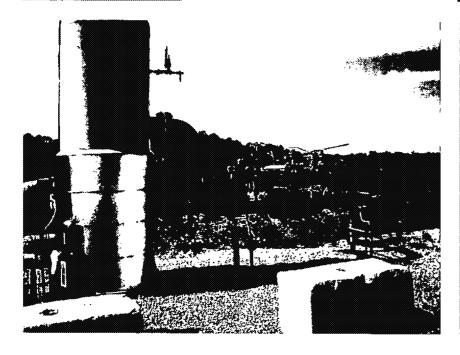
LDAR Image Title Form





LOCATION		THOMPSON YOHN ROWE		INITIAL SITE PHOTO	DC -0104			
TECHNICIA	AN J	OHN K	OWE	INITIAL SITE PHOTO CAMERA VERIFICATION PHOTO	IR_0/05			
DATE TES	TED 15	2-25-	2017					
SD Card# 5 ANDISK 86B 0410 #2								
Leak	Date	L R	Digital	IR Picture	IR Movie			
1								
2								
3								
4								
5								
6								
7								
8								

Initial Site Photo



Camera Verification Photo

